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(FILE 'HOME' ENTERED AT 16:13:09 ON 19 MAY 2006)

FILE 'REGISTRY' ENTERED AT 16:13:36 ON 19 MAY 2006

L1 309 S SN/ELS (L) 1/ELC.SUB  
 L2 183 S (CO (L) SN)/ELS (L) 2/ELC.SUB  
 L4 37 S (C(L)SN)/ELS (L) 2/ELC.SUB  
 L5 66 (C (L) CO (L) SN)/ELS (L) 3/ELC.SUB  
 L6 694 S (CU(L) SN)/ELS (L) 2/ELC.SUB  
 L7 76 S (C (L) CU (L) SN)/ELS (L) 3/ELC.SUB

FILE 'HCAPLUS' ENTERED AT 16:24:20 ON 19 MAY 2006

L8 103068 S L1  
 L9 505 S L2  
 L10 81 S L4  
 L11 11 S L5  
 L12 5781 S L6  
 L13 87 S L7  
 L14 596 S L8 (L) ANOD? (L) BATTER?  
 L15 30 S L14 (L) PARTICLE#  
 L16 30 S L15 AND ELECTROCHEMICAL?/SC,SX  
 L17 48 S L9 (L) ANOD?  
 L18 44 S L17 (L) (BATTER? OR CELL#)  
 L19 44 S L18 AND ELECTROCHEMICAL?/SC,SX  
 L20 8 S L10 (L) (ELECTROD? OR ANOD?)  
 L21 5 S L20 AND (BATTER? OR CELL#)  
 L22 5 S L21 AND ELECTROCHEMICAL?/SC,SX  
 L23 16 S L10 AND (ELECTROD? OR ANOD?)  
 L24 7 S L23 AND (BATTER? OR CELL#)  
 L25 7 S L24 AND ELECTROCHEMICAL?/SC,SX  
 L26 9 S L11 AND (ELECTROD? OR ANOD?)  
 L27 9 S L26 AND (BATTER? OR CELL#)  
 L28 8 S L27 AND ELECTROCHEMICAL?/SC,SX  
 L29 109 S L12 (L) ANOD? (L) BATTER?  
 L30 8 S L29 (L) PARTICLE#  
 L31 22 S L29 AND PARTICLE#  
 L32 8 S L30 AND ELECTROCHEMICAL?/SC,SX  
 L33 22 S L31 AND ELECTROCHEMICAL?/SC,SX  
 L34 5 S L13 AND (ANOD? OR ELECTROD?)  
 L35 4 S L34 AND (BATTER? OR CELL#)  
 L36 4 S L35 AND ELECTROCHEMICAL?/SC,SX  
 L37 19 S L20 OR L21 OR L26 OR L27 OR L34 OR L35  
 L38 16 S L37 AND (1907-2003)/PRY,AY,PY  
 L39 88 S L16 OR L19 OR L30 OR L31  
 L40 74 S L39 AND (1907-2003)/PRY,AY,PY  
 L41 71 S L40 NOT L38

=> file reg

FILE 'REGISTRY' ENTERED AT 17:36:18 ON 19 MAY 2006

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L4 37 SEA FILE=REGISTRY ABB=ON PLU=ON (C(L)SN)/ELS (L)  
 2/ELC.SUB  
 L5 66 SEA FILE=REGISTRY ABB=ON PLU=ON (C (L) CO (L) SN)/ELS  
 (L) 3/ELC.SUB  
 L7 76 SEA FILE=REGISTRY ABB=ON PLU=ON (C (L) CU (L) SN)/ELS  
 (L) 3/ELC.SUB  
 L10 81 SEA FILE=HCAPLUS ABB=ON PLU=ON L4  
 L11 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L5  
 L13 87 SEA FILE=HCAPLUS ABB=ON PLU=ON L7  
 L20 8 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 (L) (ELECTROD? OR

ANOD?)  
 L21 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND (BATTER? OR  
 CELL#)  
 L26 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND (ELECTROD? OR  
 ANOD?)  
 L27 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND (BATTER? OR  
 CELL#)  
 L34 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L13 AND (ANOD? OR  
 ELECTROD?)  
 L35 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND (BATTER? OR  
 CELL#)  
 L37 19 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 OR L21 OR L26 OR  
 L27 OR L34 OR L35  
 L38 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L37 AND (1907-2003)/PRY,  
 AY,PY

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 17:36:31 ON 19 MAY 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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=> d l38 1-16 ibib abs hitstr hitind

L38 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1036054 HCAPLUS

DOCUMENT NUMBER: 141:426362

TITLE: Nonaqueous electrolyte lithium secondary  
batteries

INVENTOR(S): Endo, Takuya; Hatake, Shinji; Mizutani, Satoshi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004342459	A2	20041202	JP 2003-137765	20030515

PRIORITY APPLN. INFO.:

JP 2003-137765

20030515

AB The **battery** consists of Li-intercalating cathode,  
 Li-intercalating **anode** contg.  $\geq 1$  active materials  
 selected from metals, alloys, or compds. which reacts with Li, and a  
 nonaq. electrolyte contg. electrolyte salts, and is characterized by  
 satisfying  $C2.8/C2.5 \geq 0.95$  or  $C2.6/C2.5 \geq 0.98$ , where  
 Cx indicates the closed-circuit discharge capacity of the  
**battery** directly after charging, by discharging to x V at  
 0.2 C under 23°. Preferably, the **anode** active  
 materials contain Sn, Pb, Si, Ge, Al, and/or In and/or the cathode  
 active materials contain Fe, Ni, Co, and/or Mn. The  
**batteries** have durable charge-discharge cycle performance.

IT 796127-98-5P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)

(**anode** active material; nonaq. electrolyte lithium

secondary batteries with durable cycle characteristics)  
 RN 796127-98-5 HCAPLUS  
 CN Cobalt alloy, base, Co 50, Sn 40, C 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Co	50	7440-48-4
Sn	40	7440-31-5
C	10	7440-44-0

IC ICM H01M010-40  
 ICS H01M004-02; H01M004-38  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST nonaq electrolyte lithium secondary battery  
 IT Secondary batteries  
 (lithium; nonaq. electrolyte lithium secondary batteries  
 with durable cycle characteristics)  
 IT 108091-51-6P 796127-98-5P  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)  
 (anode active material; nonaq. electrolyte lithium  
 secondary batteries with durable cycle characteristics)  
 IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7440-21-3,  
 Silicon, uses 7440-56-4, Germanium, uses 7440-74-6, Indium, uses  
 RL: DEV (Device component use); USES (Uses)  
 (anode active materials contg.; nonaq. electrolyte  
 lithium secondary batteries with durable cycle  
 characteristics)  
 IT 12190-79-3P, Cobalt lithium oxide (CoLiO<sub>2</sub>) 642999-49-3P, Aluminum  
 cobalt lithium magnesium oxide  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)  
 (cathode active material; nonaq. electrolyte lithium secondary  
 batteries with durable cycle characteristics)  
 IT 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7440-02-0,  
 Nickel, uses  
 RL: DEV (Device component use); USES (Uses)  
 (cathode active materials contg.; nonaq. electrolyte lithium  
 secondary batteries with durable cycle characteristics)

L38 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:996462 HCAPLUS  
 DOCUMENT NUMBER: 141:426297  
 TITLE: Anode-active material and method for  
 production thereof, and non-aqueous electrolyte  
 secondary cell using the same  
 INVENTOR(S): Mizutani, Satoshi; Inoue, Hiroshi  
 PATENT ASSIGNEE(S): Sony Corporation, Japan  
 SOURCE: PCT Int. Appl., 28 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004100293	A1	20041118	WO 2004-JP6473	200405 07

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,

KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
 MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
 SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
 VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,  
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG  
 US 2005208378 A1 20050922 US 2004-519898

200412  
 22

PRIORITY APPLN. INFO.:

<--  
 JP 2003-131234

A

200305  
 09

<--  
 WO 2004-JP6473

W

200405  
 07

AB The disclosed **anode**-active material comprises an alloy  
 contg. elements M capable of alloying with lithium and at least one  
 element R selected from the elements whose at. no. is  $\leq 20$   
 (exclusive of H, Li and a rare gas). The above elements M consist  
 of Sn and  $\geq 1$  selected from Ni, Cu, Fe, Co, Mn, Zn, In and  
 Ag, and the above element R is selected from B, C, Al, Si, P or S.  
 The material preferably contains the element R 10-50 wt %. The  
 incorporation of the element R allows the material to have a low  
 cryst. or an amorphous structure, which results in the smooth  
 entrance and exit of Li. The **anode**-active material has  
 high discharge capacity and also is excellent in the rate of  
 retention of the capacity thereof in charge-discharge cycles.

IT 794526-69-5P 794526-93-5P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered  
 material use); PREP (Preparation); USES (Uses)  
 (lithium secondary **battery anode** active  
 substance for improved capacity)

RN 794526-69-5 HCAPLUS

CN Tin alloy, base, Sn 54,Cu 36,C 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	54	7440-31-5
Cu	36	7440-50-8
C	10	7440-44-0

RN 794526-93-5 HCAPLUS

CN Tin alloy, base, Sn 48,Co 32,C 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	48	7440-31-5
Co	32	7440-48-4
C	20	7440-44-0

IC ICM H01M004-58

ICS H01M004-02; H01M010-40; C22C013-00; B22F001-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary **battery anode** active alloy

IT **Battery anodes**

(lithium ion **battery**; tin-contg. alloys as  
**anode**-active substances)

IT 146660-31-3P 794526-69-5P 794526-70-8P

794526-93-5P 794527-07-4P 794527-09-6P 795309-11-4P  
 795309-12-5P 795309-13-6P 795309-14-7P 795309-15-8P  
 795309-16-9P 795309-17-0P 795309-18-1P 795309-19-2P  
 795309-20-5P 795309-21-6P 795309-22-7P 795309-23-8P  
 795309-24-9P 795309-25-0P 795309-26-1P 795309-27-2P  
 795309-28-3P 795309-29-4P 795309-30-7P 795309-31-8P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (lithium secondary battery anode active substance for improved capacity)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:996460 HCAPLUS

DOCUMENT NUMBER: 141:426296

TITLE: Negative electrode material, process for producing the same and cell

INVENTOR(S): Mizutani, Satoshi; Inoue, Hiroshi; Kita, Akinori; Nishino, Takatomo; Tanizaki, Hiroaki

PATENT ASSIGNEE(S): Sony Corporation, Japan

SOURCE: PCT Int. Appl., 50 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004100291	A1	20041118	WO 2004-JP6477	20040507

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2005250008	A1	20051110	US 2005-520915	20050107
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PRIORITY APPLN. INFO.: JP 2003-131231 A 20030509

JP 2003-403656 A 20031202

WO 2004-JP6477 W 20040507

AB A neg. electrode material capable of providing a high capacity while enhancing cyclic characteristics, a process for producing the same, and a battery are disclosed. The neg.

electrode material has a reaction phase including an element capable of producing an intermetallic compd. with Li, and C. Preferably, the reaction phase has the half width of diffraction peak by X-ray diffraction of not smaller than 0.5°. Furthermore, the neg. electrode material can preferably provide a peak of C in a region lower than 284.5 eV by XPS and the energy difference of peak between the 3d5/2 orbit of Sn and the 1s orbit of C is preferably larger than 200.1 eV when the neg. electrode material contains Sn as the element capable of producing an intermetallic compd. with Li. The element capable of producing an intermetallic compd. with Li can thereby be inhibited from aggregating or crystg. as charge/discharge occurs.

IT 794526-48-0 794526-52-6 794526-69-5  
 794526-71-9 794526-92-4 794526-93-5  
 794526-94-6 794526-97-9 794526-98-0  
 794526-99-1 794527-00-7 794527-01-8  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (lithium secondary battery anode substance)  
 RN 794526-48-0 HCAPLUS  
 CN Tin alloy, base, Sn 60,Co 40,C 0.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	60	7440-31-5
Co	40	7440-48-4
C	0.5	7440-44-0

RN 794526-52-6 HCAPLUS  
 CN Tin alloy, base, Sn 44,Cu 36,C 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	44	7440-31-5
Cu	36	7440-50-8
C	20	7440-44-0

RN 794526-69-5 HCAPLUS  
 CN Tin alloy, base, Sn 54,Cu 36,C 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	54	7440-31-5
Cu	36	7440-50-8
C	10	7440-44-0

RN 794526-71-9 HCAPLUS  
 CN Tin alloy, base, Sn 54,Co 35,C 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	54	7440-31-5
Co	35	7440-48-4
C	11	7440-44-0

RN 794526-92-4 HCAPLUS  
 CN Tin alloy, base, Sn 51,Co 34,C 15 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	51	7440-31-5
Co	34	7440-48-4

C 15 7440-44-0

RN 794526-93-5 HCAPLUS

CN Tin alloy, base, Sn 48,Co 32,C 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====		
Sn	48	7440-31-5
Co	32	7440-48-4
C	20	7440-44-0

RN 794526-94-6 HCAPLUS

CN Tin alloy, base, Sn 54,Co 36,C 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====		
Sn	54	7440-31-5
Co	36	7440-48-4
C	10	7440-44-0

RN 794526-97-9 HCAPLUS

CN Tin alloy, base, Sn 59,Co 39,C 2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====		
Sn	59	7440-31-5
Co	39	7440-48-4
C	2	7440-44-0

RN 794526-98-0 HCAPLUS

CN Tin alloy, base, Sn 57,Co 38,C 5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====		
Sn	57	7440-31-5
Co	38	7440-48-4
C	5	7440-44-0

RN 794526-99-1 HCAPLUS

CN Tin alloy, base, Sn 45,Co 30,C 25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====		
Sn	45	7440-31-5
Co	30	7440-48-4
C	25	7440-44-0

RN 794527-00-7 HCAPLUS

CN Carbon alloy, base, C 40,Sn 36,Co 24 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====		
C	40	7440-44-0
Sn	36	7440-31-5
Co	24	7440-48-4

RN 794527-01-8 HCAPLUS

CN Carbon alloy, base, C 50,Sn 30,Co 20 (9CI) (CA INDEX NAME)

Component	Component	Component
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	Percent	Registry Number
C	50	7440-44-0
Sn	30	7440-31-5
Co	20	7440-48-4

IC ICM H01M004-38  
ICS H01M004-02; H01M010-40; C22C013-00; B22F001-00  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST lithium secondary battery anode substance metal  
carbon alloy  
IT **Battery anodes**  
(lithium ion battery; carbon contg. alloys capable of  
forming intermetallic compd. with lithium as)

IT 794526-48-0 794526-49-1 794526-51-5 794526-52-6  
794526-53-7 794526-54-8 794526-55-9 794526-56-0 794526-57-1  
794526-58-2 794526-59-3 794526-60-6 794526-61-7 794526-62-8  
794526-63-9 794526-64-0 794526-65-1 794526-66-2 794526-67-3  
794526-68-4 794526-69-5 794526-70-8 794526-71-9  
794526-73-1 794526-75-3 794526-77-5 794526-79-7 794526-80-0  
794526-81-1 794526-82-2 794526-83-3 794526-84-4 794526-85-5  
794526-86-6 794526-87-7 794526-88-8 794526-89-9 794526-90-2  
794526-91-3 794526-92-4 794526-93-5  
794526-94-6 794526-95-7 794526-96-8 794526-97-9  
794526-98-0 794526-99-1 794527-00-7  
794527-01-8 794527-02-9 794527-03-0 794527-04-1  
794527-05-2 794527-06-3 794527-07-4 794527-08-5 794527-09-6  
794527-10-9 794527-11-0 794527-12-1 794527-13-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(lithium secondary battery anode substance)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L38 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:632493 HCAPLUS  
DOCUMENT NUMBER: 141:176834  
TITLE: Material for secondary lithium battery  
anode and its manufacture  
INVENTOR(S): Hara, Toshihisa  
PATENT ASSIGNEE(S): Kobe Steel, Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004220871	A2	20040805	JP 2003-5145	200301 10

PRIORITY APPLN. INFO.: JP 2003-5145  
200301  
10

AB The title material has a surface plating layer, comprising  
successively a Ni layer, a Cu-Sn alloy layer, and a Sn layer, on a  
Cu (alloy) contg. base material; where the Cu-Sn alloy layer  
consists of a  $\eta$  layer (Cu<sub>6</sub>Sn<sub>5</sub>) with a thickness of 5-100  $\mu$ m.  
The title material is manufd. by forming the Ni plating layer on the  
base material; repeatedly forming successive layers of the Cu  
plating layer and the Sn plating layer  $\geq 1$  times; and heat



treating to form the  $\eta$  layer (Cu<sub>6</sub>Sn<sub>5</sub>) contg. Cu-Sn alloy layer.  
 IT 587840-11-7  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (compns. and manuf. of anode materials contg. Cu-Sn  
 plated Cu or Cu alloys for secondary lithium batteries)  
 RN 587840-11-7 HCAPLUS  
 CN Carbon alloy, nonbase, C,Cu,Sn (9CI) (CA INDEX NAME)

Component Component  
 Registry Number

=====+

C 7440-44-0  
 Cu 7440-50-8  
 Sn 7440-31-5

IC ICM H01M004-02  
 ICS C23C018-31; C23C018-32; C23C018-48; C23C018-52; C25D005-12;  
 C25D005-50; C25D007-00; H01M004-04; H01M004-38; H01M004-66  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST secondary lithium battery anode manuf;  
 battery anode copper tin alloy plated copper alloy  
 IT Battery anodes  
 (compns. and manuf. of anode materials contg. Cu-Sn  
 plated Cu or Cu alloys for secondary lithium batteries)  
 IT 7440-02-0, Nickel, uses 7440-31-5, Tin, uses 7440-50-8, Copper,  
 uses 11143-56-9 12019-69-1 12621-68-0 12668-36-9  
 39398-44-2 73235-25-3 95079-63-3 110833-60-8 479352-43-7,  
 Cobalt copper phosphide 587840-11-7 591767-70-3  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (compns. and manuf. of anode materials contg. Cu-Sn  
 plated Cu or Cu alloys for secondary lithium batteries)

L38 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:734244 HCAPLUS  
 DOCUMENT NUMBER: 137:265578  
 TITLE: Anode and battery using the anode  
 INVENTOR(S): Akashi, Hiroyuki; Shibamoto, Gorou; Adachi,  
 Momoe; Fujita, Shigeru  
 PATENT ASSIGNEE(S): Sony Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002279971	A2	20020927	JP 2001-75078	200103 15
<--				
PRIORITY APPLN. INFO.:			JP 2001-75078	200103 15
<--				

AB The anode has a layer of a light metal intercalating and depositing  
 active mass, where the apparent d. of the material in the layer is  
 $\geq 40\%$  of the real d. of the material. The material is  
 preferably has a carbonaceous material, and may also contain metal,  
 semiconductor, alloy, or compd. capable of alloying with the light  
 metal. The light metal is preferably Li.

IT 140929-64-2  
 RL: DEV (Device component use); USES (Uses)  
 (synthetic graphite; Li intercalation-deposition carbonaceous

material based anode with controlled d. for secondary lithium batteries)

RN 140929-64-2 HCAPLUS  
CN Graphite, alloy, graphite 70,Sn 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Graphite	70	7782-42-5
Sn	30	7440-31-5

IC ICM H01M004-02  
ICS H01M004-38; H01M004-58; H01M010-40  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST secondary battery lithium intercalating depositing metal carbonaceous anode; metal carbonaceous anode density control secondary lithium battery  
IT Battery anodes  
(Li intercalation-deposition carbonaceous material based anode with controlled d. for secondary lithium batteries)  
IT Carbonaceous materials (technological products)  
RL: DEV (Device component use); USES (Uses)  
(graphitization resistant; Li intercalation-deposition carbonaceous material based anode with controlled d. for secondary lithium batteries)  
IT 140929-64-2  
RL: DEV (Device component use); USES (Uses)  
(synthetic graphite; Li intercalation-deposition carbonaceous material based anode with controlled d. for secondary lithium batteries)  
IT 7782-42-5, Graphite, uses  
RL: DEV (Device component use); USES (Uses)  
(synthetic; Li intercalation-deposition carbonaceous material based anode with controlled d. for secondary lithium batteries)

L38 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2002:47908 HCAPLUS  
DOCUMENT NUMBER: 136:121056  
TITLE: Secondary nonaqueous electrolyte battery  
INVENTOR(S): Kono, Tatsuoki; Takami, Norio  
PATENT ASSIGNEE(S): Toshiba Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002015729	A2	20020118	JP 2000-199943	20000630
JP 3535454	B2	20040607	JP 2000-199943	20000630

PRIORITY APPLN. INFO.: <-->

AB The battery has an anode contg. an alkali metal intercalating alloy formed on a collector and a carbonaceous coating on the alloy layer.  
IT 390361-52-1  
RL: MOA (Modifier or additive use); USES (Uses)

(carbonaceous coatings for lithium intercalating alloy  
anodes in secondary lithium batteries)

RN 390361-52-1 HCAPLUS

CN Carbon alloy, base, C 66, Sn 34 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
C	66	7440-44-0
Sn	34	7440-31-5

IC ICM H01M004-02

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** alkali metal intercalating alloy anode  
carbonaceous coating

IT **Battery** anodes

(lithium intercalating alloy anodes with carbonaceous coatings  
for secondary lithium batteries)

IT 7440-44-0, Carbon, uses 390361-50-9 390361-52-1

390361-54-3 390361-56-5

RL: MOA (Modifier or additive use); USES (Uses)

(carbonaceous coatings for lithium intercalating alloy  
anodes in secondary lithium batteries)

IT 39460-45-2 116911-10-5 186136-79-8 390361-44-1 390361-48-5

RL: DEV (Device component use); USES (Uses)

(lithium intercalating alloy anodes with carbonaceous coatings  
for secondary lithium batteries)

L38 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:498241 HCAPLUS

DOCUMENT NUMBER: 135:306075

TITLE: Graphite-tin composites as anode materials for  
lithium-ion batteries

AUTHOR(S): Wang, G. X.; Ahn, J.-H.; Lindsay, M. J.; Sun,  
L.; Bradhurst, D. H.; Dou, S. X.; Liu, H. K.

CORPORATE SOURCE: Institute for Superconducting and Electronic  
Materials, Energy Storage Materials Research  
Program, University of Wollongong, Wollongong,  
2522, Australia

SOURCE: Journal of Power Sources (2001),  
97-98, 211-215

CODEN: JPSODZ; ISSN: 0378-7753

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Graphite-tin composites were produced by high-energy ball-milling.  
X-ray diffraction and HREM observation showed that graphite became  
amorphous and tin became nanocryst. after the intensive ball  
milling. The element Sn was encapsulated in the ductile graphite  
matrix on a nanometer scale. The lithium storage capacity increases  
with the addn. of Sn, which could be attributed to the reaction of  
Sn with Li to form LixSn alloys. The vol. expansion due to the  
alloying process may be buffered by the amorphous graphite matrix.  
The C0.9Sn0.1 electrode can deliver a discharge capacity of 1250  
mAh/g in the initial cycle. Generally, the capacity of the  
ball-milled C, C0.9Sn0.1 and C0.8Sn0.2 electrodes decrease with  
cycling quite quickly, but the C0.9Sn0.1 and C0.8Sn0.2 electrodes  
have better cyclability than that of the ball-milled graphite  
electrode. The combination of C and Sn could be an anode material  
with high capacity for lithium-ion batteries.

IT 365513-40-2 365513-41-3

RL: PEP (Physical, engineering or chemical process); PRP  
(Properties); PROC (Process)

(graphite-tin composites as anode materials for  
lithium-ion batteries)

RN 365513-40-2 HCAPLUS  
CN Graphite, compd. with tin (9:1) (9CI) (CA INDEX NAME)

CM 1

CRN 7782-42-5  
CMF C  
CCI MNS

C

CM 2

CRN 7440-31-5  
CMF Sn

Sn

RN 365513-41-3 HCAPLUS  
CN Graphite, compd. with tin (5:1) (9CI) (CA INDEX NAME)

CM 1

CRN 7782-42-5  
CMF C  
CCI MNS

C

CM 2

CRN 7440-31-5  
CMF Sn

Sn

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST lithium secondary **batteries** anodes graphite tin composites  
IT Anodes  
Composites  
(graphite-tin composites as anode materials for lithium-ion  
**batteries**)  
IT Secondary **batteries**  
(lithium; graphite-tin composites as anode materials for  
lithium-ion **batteries**)  
IT 7440-31-5, Tin, processes 7782-42-5, Graphite, processes  
365513-40-2 365513-41-3  
RL: PEP (Physical, engineering or chemical process); PRP  
(Properties); PROC (Process)  
(graphite-tin composites as **anode** materials for  
lithium-ion **batteries**)  
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L38 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:377176 HCAPLUS  
 DOCUMENT NUMBER: 134:355496  
 TITLE: Secondary nonaqueous electrolyte  
           **batteries**  
 INVENTOR(S): Kajiura, Hisashi; Yamaura, Kiyoshi  
 PATENT ASSIGNEE(S): Sony Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
           CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2001143701	A2	20010525	JP 1999-325940	199911 16

PRIORITY APPLN. INFO.: <-- JP 1999-325940  
 <--  
 199911  
 16

AB The **batteries** have Li intercalating **electrodes**  
 and nonaq. electrolyte soln., where the **anode** active mass  
 contains a Li alloying alloy phase and a Li nonalloying alloy  
 phases. The alloying phase is preferably CoSn, CoSn<sub>2</sub>, Co<sub>3</sub>Sn<sub>2</sub>,  
 Ni<sub>3</sub>Sn<sub>4</sub>, Ni<sub>3</sub>Sn<sub>2</sub>, and/or Ni<sub>3</sub>Sn; and the nonalloying phase is  
 Co<sub>3</sub>SnC<sub>0.7</sub>, Co<sub>2</sub>C, Co<sub>3</sub>C, and/or Ni<sub>3</sub>C.  
 IT 339334-52-0, Cobalt tin carbide (Co<sub>3</sub>SnC<sub>0.7</sub>)  
 RL: DEV (Device component use); USES (Uses)  
       (**anodes** from alloys contg. lithium alloying and  
       nonalloying phases for secondary lithium **batteries**)  
 RN 339334-52-0 HCAPLUS  
 CN Cobalt tin carbide (Co<sub>3</sub>SnC<sub>0.7</sub>) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
-----	-----	-----
Co	3	7440-48-4
C	0.7	7440-44-0
Sn	1	7440-31-5

IC ICM H01M004-40  
 ICS H01M004-02; H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST secondary lithium **battery anode** alloy compn;  
 lithium alloying nonalloying phase **battery anode**  
 alloy; cobalt tin alloy lithium **battery anode**;  
 nickel tin alloy lithium **battery anode**; carbon  
 metal alloy lithium **battery anode**  
 IT **Battery anodes**  
       (**anodes** from alloys contg. lithium alloying and  
       nonalloying phases for secondary lithium **batteries**)  
 IT 7439-93-2, Lithium, uses 12011-59-5, Cobalt carbide (Co<sub>3</sub>C)  
 12012-02-1, Nickel carbide (Ni<sub>3</sub>C) 12059-23-3 12059-24-4  
 12192-29-9, Cobalt carbide (Co<sub>2</sub>C) 12202-01-6 12297-65-3  
 12394-61-5 12526-67-9 339334-52-0, Cobalt tin carbide  
 (Co<sub>3</sub>SnC<sub>0.7</sub>)  
 RL: DEV (Device component use); USES (Uses)  
       (**anodes** from alloys contg. lithium alloying and  
       nonalloying phases for secondary lithium **batteries**)

L38 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:326361 HCAPLUS

DOCUMENT NUMBER: 134:341670  
 TITLE: Electroconductive antioxidation coatings and graphite electrodes using them  
 INVENTOR(S): Hisashi, Hideyuki; Kawabata, Kazumasa  
 PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan; Mikuni Color Works Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001123123	A2	20010508	JP 1999-308603	19991029
US 2003035956	A1	20030220	US 2001-809749	20010315
US 6645629	B2	20031111		
CN 1375526	A	20021023	CN 2001-109172	20010316
US 2004023021	A1	20040205	US 2003-621838	20030716
PRIORITY APPLN. INFO.:			JP 1999-308603	A 19991029
			US 2001-809749	A1 20010315

AB The coatings, useful for graphite electrodes for steel making furnaces, contain electroconductive materials, antioxidants, polymer emulsions, inorg. colloids, and transition metals in aq. media, wherein the content of alkali metals and/or alk. earth metals (Cb) is 20% or less (based on the antioxidants). Thus, an aq. compn. comprising carbon black (4000B), graphite powders, SiC, B<sub>4</sub>C, a latex emulsion, colloidal silica, Cr powders, and dispersants was applied on a graphite electrode to give a coating showing Cb 0.56%, surface elec. resistivity 2  $\Omega$  after heating at 400° for 30 min, and no damage after heating at 1000° for 30 min.

IT 52036-93-8, Tin carbide  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (antioxidant; electroconductive antioxidn. coatings for graphite electrodes for steel-making furnaces)

RN 52036-93-8 HCAPLUS  
 CN Tin carbide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
C	x	7440-44-0
Sn	x	7440-31-5

IC ICM C09D201-00  
 ICS C09D005-00; C09D005-02; C09D005-24; C09D007-12; H01B001-04;

H01B001-24

CC 42-10 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 55, 57, 72  
 IT 1299-86-1, Aluminum carbide 7440-21-3, Silicon, uses 7440-42-8,  
 Boron, uses 10043-11-5, Boron nitride, uses 12033-89-5, Silicon  
 nitride, uses 12070-08-5, Titanium carbide 12070-14-3, Zirconium  
 carbide 24304-00-5, Aluminum nitride 25583-20-4, Titanium  
 nitride 25658-42-8, Zirconium nitride 51845-89-7, Germanium  
 nitride 52036-93-8, Tin carbide 55574-97-5, Tin nitride  
 67422-42-8, Antimony carbide 67527-63-3, Germanium carbide  
 143499-07-4, Antimony nitride  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (antioxidant; electroconductive antioxidn. coatings for graphite  
 electrodes for steel-making furnaces)

L38 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:324524 HCAPLUS

DOCUMENT NUMBER: 134:341669

TITLE: Electroconductive antioxidation coatings and  
graphite electrodes using them

INVENTOR(S): Hisashi, Hideyuki; Kawabata, Kazumasa

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan; Mikuni Color  
Works Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001123124	A2	20010508	JP 1999-308604	199910 29

PRIORITY APPLN. INFO.:

&lt;-- JP 1999-308604

199910  
29

AB The coatings, useful for graphite electrodes for steel making  
 furnaces, contain electroconductive materials, antioxidants, polymer  
 emulsions, inorg. colloids, and transition metals in aq. media,  
 wherein the pH of the coatings is 9.0 or less. Thus, an aq. compn.  
 with pH 7.2 comprising carbon black (4000B), graphite powders, SiC,  
 B4C, a latex emulsion, colloidal silica, Cr powders, and dispersants  
 was applied on a graphite electrode to give a coating showing  
 surface elec. resistivity 2  $\Omega$  after heating at 400° for  
 30 min and no damage after heating at 1000° for 30 min.

IT 52036-93-8, Tin carbide

RL: TEM (Technical or engineered material use); USES (Uses)  
 (antioxidant; electroconductive antioxidn. coatings for graphite  
 electrodes for steel-making furnaces)

RN 52036-93-8 HCAPLUS

CN Tin carbide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
C	x	7440-44-0
Sn	x	7440-31-5

IC ICM C09D201-00

ICS C09D005-24; C09D007-12; C09K015-32; H05B007-085

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55, 57, 72  
 IT 1299-86-1, Aluminum carbide 7440-21-3, Silicon, uses 7440-42-8, Boron, uses 10043-11-5, Boron nitride, uses 12033-89-5, Silicon nitride, uses 12070-08-5, Titanium carbide 12070-14-3, Zirconium carbide 24304-00-5, Aluminum nitride 25583-20-4, Titanium nitride 25658-42-8, Zirconium nitride 51845-89-7, Germanium nitride 52036-93-8, Tin carbide 55574-97-5, Tin nitride 67422-42-8, Antimony carbide 67527-63-3, Germanium carbide 143499-07-4, Antimony nitride  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (antioxidant; electroconductive antioxidn. coatings for graphite electrodes for steel-making furnaces)

L38 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:19960 HCAPLUS

DOCUMENT NUMBER: 134:149936

TITLE: Search for suitable matrix for the use of tin-based anodes in lithium ion batteries

AUTHOR(S): Santos-Pena, J.; Brousse, T.; Schleich, D. M.

CORPORATE SOURCE: ISITEM, Laboratoire Genie des Materiaux, Nantes, F44306, Fr.

SOURCE: Solid State Ionics (2000), 135(1-4), 87-93

CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Graphite is proposed as matrix for tin which is able to react inside the graphite sheets with lithium. If this matrix should be able to support the cell changes assocd. to the formation of lithium-tin alloys, an improvement of the performance of the lithium ion battery anode would be expected. Two techniques, (vapor phase and molten salt techniques, resp.) have been considered to obtain graphite intercalation compds. (GIC) with tin chlorides. The subsequent redn. of these systems with hydrogen at 400°C must lead to tin GICs. Due to the little extent of the intercalation reaction, the obtained compds. possess a maximal compn. of Sn<sub>0.044</sub>C<sub>6</sub>. Despite the small amt. of intercalated tin, potentiostatic tests reveal that both tin and graphite are electrochem. active vs. lithium. Galvanostatic tests indicate that the contribution of tin to the system total capacity increases for the molten salt samples and remains almost const. for the vapor phase samples. This behavior seems to indicate that the activity of tin intercalated atoms is very stable compared to pure graphite. The upper capacity found, 400 mAh/g, corresponds to the Sn<sub>0.044</sub>C<sub>6</sub> system, obtained by the molten salt technique. Its good electrochem. properties agree with our idea that graphite is an adequate matrix for the tin atoms or clusters presents therein.

IT 89248-61-3, Graphite compd. with tin

RL: DEV (Device component use); USES (Uses)

(matrix for the use of tin-based anodes in lithium ion batteries)

RN 89248-61-3 HCAPLUS

CN Graphite, compd. with tin (9CI) (CA INDEX NAME)

CM 1

CRN 7782-42-5

CMF C

CCI MNS

C



CM 2

CRN 7440-31-5  
CMF Sn

Sn

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 72  
ST lithium **battery** anode tin matrix; graphite intercalated  
tin anode **battery**  
IT Intercalation compounds  
RL: DEV (Device component use); USES (Uses)  
(graphite-tin; matrix for the use of tin-based anodes in lithium  
ion **batteries**)  
IT Secondary **batteries**  
(lithium; matrix for the use of tin-based anodes in lithium ion  
**batteries**)  
IT **Battery** anodes  
(matrix for the use of tin-based anodes in lithium ion  
**batteries**)  
IT 7440-31-5, Tin, uses 89248-61-3, Graphite compd. with tin  
RL: DEV (Device component use); USES (Uses)  
(matrix for the use of tin-based **anodes** in lithium ion  
**batteries**)  
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L38 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2000:210572 HCAPLUS  
DOCUMENT NUMBER: 132:210263  
TITLE: **Anode** materials for secondary lithium  
**batteries**, **anodes** from the  
materials, the **batteries**, and  
manufacture of the **anodes** and the  
**batteries**  
INVENTOR(S): Kawakami, Soichiro; Asao, Masaya  
PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan  
SOURCE: PCT Int. Appl., 111 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000017948	A1	20000330	WO 1999-JP5092	199909 17
<--				
JP 2000311681	A2	20001107	JP 1999-261516	199909 16
<--				
JP 3620703	B2	20050216		
CA 2310475	AA	20000330	CA 1999-2310475	199909

17  
 <--  
 EP 1039568 A1 20000927 EP 1999-943402 199909  
 17  
 <--  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, FI  
 CN 1492525 A 20040428 CN 2001-2001140730 199909  
 17  
 <--  
 TW 468287 B 20011211 TW 1999-88116171 199909  
 18  
 <--  
 US 6949312 B1 20050927 US 2000-554794 200008  
 14  
 <--  
 US 2005175901 A1 20050811 US 2005-104440 200504  
 13  
 <--  
 PRIORITY APPLN. INFO.: JP 1998-282087 A 199809  
 18  
 <--  
 JP 1999-50471 A 199902  
 26  
 <--  
 JP 1999-261516 A 199909  
 16  
 <--  
 WO 1999-JP5092 W 199909  
 17  
 <--  
 US 2000-554794 A3 200008  
 14  
 <--  
 AB The **anode** materials contain particles of amorphous  
 non-stoichiometric alloy Sn-A-X, where A = transition metal(s), X is  
 an optional component and is selected from O, F, N, Mg, Ba, Sr, Ca,  
 La, Ce, Si, Ge, C, P, B, Bi, Sb, Al, In, and Zn. The **anode**  
 have the above **anode** materials applied on a collector  
 which does not form alloys with Li and are prepd. by applying the  
 material on the collector.  
 IT 260805-56-9P  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)  
 (compns. and manuf. of **anode** materials for secondary  
 lithium **batteries**)  
 RN 260805-56-9 HCAPLUS  
 CN Carbon alloy, nonbase, C,Co,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
C	7440-44-0
Co	7440-48-4
Sn	7440-31-5

IC ICM H01M004-58  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST lithium **battery anode** amorphous tin alloy  
 IT **Battery anodes**  
     (compns. and manuf. of **anode** materials for secondary  
     lithium **batteries**)  
 IT 62186-40-7P 67828-86-8P 68112-75-4P 70797-67-0P 105739-32-0P  
 108091-51-6P 119411-97-1P 260805-52-5P 260805-53-6P  
 260805-54-7P 260805-55-8P **260805-56-9P** 260805-57-0P  
 260805-58-1P 260805-59-2P 260805-60-5P 260805-61-6P  
 260805-62-7P 260805-63-8P 260805-64-9P 260805-65-0P  
 260805-66-1P 260805-67-2P 260805-68-3P 260805-69-4P  
 260805-70-7P 260805-71-8P 260805-72-9P 260805-73-0P  
 260805-74-1P 260805-75-2P 260805-76-3P 260805-77-4P  
 260805-78-5P 260805-79-6P 260805-80-9P 260805-81-0P  
 260805-82-1P 260805-83-2P 260805-84-3P  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)  
     (compns. and manuf. of **anode** materials for secondary  
     lithium **batteries**)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

L38 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:200927 HCAPLUS

DOCUMENT NUMBER: 126:310703

TITLE: Electrical and optical properties of carbon-tin  
 films plasma-deposited from tetramethyltin in a  
 three-electrode reactor

AUTHOR(S): Tyczkowski, J.; Pietrzyk, B.; Hatanaka, Y.;  
 Nakanishi, Y.

CORPORATE SOURCE: Center of Molecular and Macromolecular Studies,  
 Polish Academy of Sciences, Sienkiewicza 112,  
 Lodz, 90-363, Pol.

SOURCE: Applied Surface Science (1997),  
 113/114, 534-538

CODEN: ASUSEE; ISSN: 0169-4332

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electronic properties of amorphous hydrogenated C-Sn films  
 (a-SnXCY:H) plasma-deposited in a three-electrode reactor were  
 studied. Small changes in the parameter V(-), describing the ion  
 impact energy in the deposition process, cause a drastic change in  
 the electronic structure of the films. This effect is attributed to  
 the amorphous insulator-amorphous semiconductor transition. To  
 understand the nature of the transition effect better, studies of a  
 structure transformation process, taking place in the semiconducting  
 films under the influence of O, were performed.

IT 52036-93-8P, Tin carbide

RL: PNU (Preparation, unclassified); TEM (Technical or engineered  
 material use); PREP (Preparation); USES (Uses)

(hydrogenated; elec. and optical properties of carbon-tin films  
 plasma-deposited from tetramethyltin in a three-electrode  
 reactor)

RN 52036-93-8 HCAPLUS

CN Tin carbide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
C	x	7440-44-0
Sn	x	7440-31-5

CC 76-1 (Electric Phenomena)

IT 52036-93-8P, Tin carbide  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (hydrogenated; elec. and optical properties of carbon-tin films plasma-deposited from tetramethyltin in a three-electrode reactor)

L38 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:350582 HCAPLUS  
 DOCUMENT NUMBER: 122:110624  
 TITLE: Secondary nonaqueous electrolyte  
 batteries with improved anodes  
 INVENTOR(S): Fujimoto, Masahisa; Nishio, Koji; Saito, Toshihiko  
 PATENT ASSIGNEE(S): Sanyo Electric Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06290782	A2	19941018	JP 1993-96876	19930330
<--				
PRIORITY APPLN. INFO.:			JP 1993-96876	19930330
<--				

AB The **batteries** use anodes composed of  $\geq 1$  carbide of Cr, Si, Co, Zr, W, Ge, Ta, Ti, Fe, Nb, Ni, V, B, Hf, and Mo or  $\geq$  nitrides of In, Ga, Cr, Si, Ge, Co, Zr, Sn, W, Ta, Ti, Fe, Nb, Ni, V, Mn, Hf, and Mo capable of intercalating with alkali metal ions, e.g., Li, or alk. earth ions, e.g., Ca.

IT 52036-93-8, Tin carbide  
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
 (lithium intercalating carbide and nitride **anodes** for secondary nonaq. **batteries**)

RN 52036-93-8 HCAPLUS  
 CN Tin carbide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
C	x	7440-44-0
Sn	x	7440-31-5

IC ICM H01M004-58

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** lithium intercalating carbide anode; nitride

lithium intercalating **battery** anode; alk earth

intercalating **battery** anode

IT Anodes

(**battery**, lithium intercalating carbide and nitride anodes for secondary nonaq. **batteries**)

IT 7439-93-2, Lithium, uses

RL: DEV (Device component use); USES (Uses)

(lithium intercalating carbide and nitride anodes for secondary nonaq. **batteries**)

IT 409-21-2, Silicon carbide, uses 11115-87-0, Hafnium nitride

11129-37-6, Hafnium carbide 11130-21-5, Vanadium carbide  
 11130-49-7, Chromium carbide 11130-73-7, Tungsten carbide  
 12033-89-5, Silicon nitride, uses 12069-32-8, Boron carbide (B4C)  
 12069-94-2, Niobium carbide 12070-08-5, Titanium carbide  
 12627-57-5, Molybdenum carbide 12640-64-1, Iron carbide  
 12646-17-2, Manganese nitride 12648-34-9, Niobium nitride  
 12674-04-3, Vanadium nitride 12705-37-2, Chromium nitride  
 12710-36-0, Nickel carbide 12738-11-3, Nickel nitride  
 24621-21-4, Niobium nitride (NbN) 25583-20-4, Titanium nitride  
 25617-97-4, Gallium nitride 25617-98-5, Indium nitride  
 37245-77-5, Iron nitride 37245-81-1, Molybdenum nitride  
 37359-53-8, Tungsten nitride 51177-04-9, Cobalt carbide  
 51680-51-4, Tantalum carbide 51680-56-9, Zirconium carbide  
 51845-89-7, Germanium nitride 52036-93-8, Tin carbide  
 55326-68-6, Cobalt nitride 59114-58-8, Tantalum nitride  
 67527-63-3, Germanium carbide 119173-61-4, Zirconium nitride  
 RL: DEV (Device component use); TEM (Technical or engineered  
 material use); USES (Uses)  
 (lithium intercalating carbide and nitride anodes for  
 secondary nonaq. batteries)

L38 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1973:434471 HCAPLUS

DOCUMENT NUMBER: 79:34471

TITLE: Electrode holder for an electric arc  
furnace

INVENTOR(S): Yoshimura, Tsuneo; Suzuki, Kunio; Shikano, Gohei

PATENT ASSIGNEE(S): Mitsubishi Steel Manufacturing Co., Ltd.; Toyo  
Carbon Co., Ltd.

SOURCE: U.S., 23 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3717445	A	19730220	US 1970-87086	197011 05
JP 50022737	B4	19750801	JP 1970-89329	197010 13
JP 50022738	B4	19750801	JP 1970-89330	197010 13
GB 1325179	A	19730801	GB 1970-53746	197011 11
SE 377264	B	19750623	SE 1970-15221	197011 11
PRIORITY APPLN. INFO.:			JP 1969-90676	A 196911 12
			JP 1970-89329	A 197010 13

<--  
JP 1970-89330      A      197010  
13

<--

AB A sintered alloy liner suitable for a graphite electrode holder of the elec.-arc furnace is described. The liner has a surface that conforms to the surface of the electrode. The liner is a porous, sintered, powder-metallurgical alloy contg. 30-100% of powd. Cu, Fe, and Al and mixts. thereof, 0-50% of graphite powder, 0-30% of an addnl. metal powder selected from Sn, Pb, Zn, Mg, W, Mo, Co, Ta, Cr, Ti, Be, Ag, Mn, and Cd and mixts. thereof, and 0-3% of C and graphite fiber and mixts. thereof. The liner comprises 2 or more porous, powder-metallurgical members laminated together. The mixed powders are molded to the desired form and the molded member is sintered to provide a porous, conductive structure.

IT 39352-60-8

RL: USES (Uses)

(sintered lining, for graphite electrode holder of elec.-arc furnace)

RN 39352-60-8 HCAPLUS

CN Copper alloy, base, Cu 93, graphite 5, Sn 2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Cu	93	7440-50-8
Graphite	5	7782-42-5
Sn	2	7440-31-5

IC H05B

INCL 029182300

CC 55-4 (Ferrous Metals and Alloys)

ST sintered lining electrode holder; elec furnace  
electrode holder; graphite electrode holder lining

IT Electrodes

(graphite, sintered alloy holder for, for elec.-arc furnace)

IT Linings

(sintered alloy, for graphite electrode holder of elec.-arc furnace)

IT 7782-42-5, uses and miscellaneous

RL: USES (Uses)

(electrode, sintered alloys for holder of, for elec.-arc furnace)

IT 39351-33-2 39352-59-5 39352-60-8 39352-61-9

RL: USES (Uses)

(sintered lining, for graphite electrode holder of elec.-arc furnace)

IT 7440-50-8, uses and miscellaneous 39351-23-0 39351-24-1  
39351-29-6 39351-30-9 39352-56-2 39352-57-3 39354-03-5  
39354-04-6

RL: USES (Uses)

(sintered linings, for graphite electrode holder of elec.-arc furnace)

L38 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1964:453080 HCAPLUS

DOCUMENT NUMBER: 61:53080

ORIGINAL REFERENCE NO.: 61:9174f-h

TITLE: Fuel cell

INVENTOR(S): Tragert, William E.; Fullman, Robert L.; Carter, Ralph E.

PATENT ASSIGNEE(S): General Electric Co.

SOURCE: 6 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3138490		19640623	US 1963-312710	19630930

&lt;--

AB A high-temp. (1000-1200°) fuel cell in which the electrolyte is solid and the electrodes are in the liq. state during cell operation consists of an open container of Al<sub>2</sub>O<sub>3</sub>, or C in which is positioned a 2nd container of solid stabilized zirconia, the cell electrolyte. A metallic, C-solvent electrode, such as Fe satd. with C or Co-Sn satd. with C, is placed in the 1st container in direct contact with the 2nd container, which contains the Ag electrode. A C lead is inserted into the 1st container, while a stainless steel lead is inserted into the Ag electrode. The C lead, providing elec. contact, dissolves to maintain C satn. of the anode. A gaseous oxidant (air or O) is supplied to the Ag electrode. The reactions occurring during operation of the fuel cell are the same as those described in U.S. 3,138,488 (CA 61, 7951f). Several modified fuel cells are also described.

IT 260805-56-9, Cobalt alloys, carbon-Sn-  
 (electrodes, fuel cell with molten)

RN 260805-56-9 HCAPLUS

CN Carbon alloy, nonbase, C,Co,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
C	7440-44-0
Co	7440-48-4
Sn	7440-31-5

INCL 136086000

CC 15 (Electrochemistry)

IT Voltaic cells  
 (fuel, with molten Ag cathode and solid oxide electrolyte)

IT Electrodes  
 (fuel-cell, molten, in solid electrolytes)

IT 7440-22-4, Silver 12716-37-9, Iron alloys, carbon-  
 260805-56-9, Cobalt alloys, carbon-Sn-  
 (electrodes, fuel cell with molten)

IT 1314-23-4, Zirconium oxide, ZrO<sub>2</sub>  
 (fuel cell with electrolyte of solid, with molten  
 electrodes)

=&gt; d his

(FILE 'HOME' ENTERED AT 16:13:09 ON 19 MAY 2006)

FILE 'REGISTRY' ENTERED AT 16:13:36 ON 19 MAY 2006

L1 309 S SN/ELS (L) 1/ELC.SUB

L2 183 S (CO (L) SN)/ELS (L) 2/ELC.SUB

L3 492 S L1 OR L2

L4 37 S (C(L)SN)/ELS (L) 2/ELC.SUB

L5 66 (C (L) CO (L) SN)/ELS (L) 3/ELC.SUB

L6 694 S (CU(L) SN)/ELS (L) 2/ELC.SUB

L7 76 S (C (L) CU (L) SN)/ELS (L) 3/ELC.SUB

FILE 'HCAPLUS' ENTERED AT 16:24:20 ON 19 MAY 2006

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L8      103068 S L1
L9      505 S L2
L10     81 S L4
L11     11 S L5
L12     5781 S L6
L13     87 S L7
L14     596 S L8 (L) ANOD? (L) BATTER?
L15     30 S L14 (L) PARTICLE#
L16     30 S L15 AND ELECTROCHEMICAL?/SC,SX
L17     48 S L9 (L) ANOD?
L18     44 S L17 (L) (BATTER? OR CELL#)
L19     44 S L18 AND ELECTROCHEMICAL?/SC,SX
L20     8 S L10 (L) (ELECTROD? OR ANOD?)
L21     5 S L20 AND (BATTER? OR CELL#)
L22     5 S L21 AND ELECTROCHEMICAL?/SC,SX
L23     16 S L10 AND (ELECTROD? OR ANOD?)
L24     7 S L23 AND (BATTER? OR CELL#)
L25     7 S L24 AND ELECTROCHEMICAL?/SC,SX
L26     9 S L11 AND (ELECTROD? OR ANOD?)
L27     9 S L26 AND (BATTER? OR CELL#)
L28     8 S L27 AND ELECTROCHEMICAL?/SC,SX
L29     109 S L12 (L) ANOD? (L) BATTER?
L30     8 S L29 (L) PARTICLE#
L31     22 S L29 AND PARTICLE#
L32     8 S L30 AND ELECTROCHEMICAL?/SC,SX
L33     22 S L31 AND ELECTROCHEMICAL?/SC,SX
L34     5 S L13 AND (ANOD? OR ELECTROD?)
L35     4 S L34 AND (BATTER? OR CELL#)
L36     4 S L35 AND ELECTROCHEMICAL?/SC,SX
L37     19 S L20 OR L21 OR L26 OR L27 OR L34 OR L35
L38     16 S L37 AND (1907-2003)/PRY,AY,PY
L39     88 S L16 OR L19 OR L30 OR L31
L40     74 S L39 AND (1907-2003)/PRY,AY,PY
L41     71 S L40 NOT L38

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=> file reg

FILE 'REGISTRY' ENTERED AT 17:40:42 ON 19 MAY 2006  
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=> d l41 que stat

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L1      309 SEA FILE=REGISTRY ABB=ON PLU=ON SN/ELS (L) 1/ELC.SUB
L2      183 SEA FILE=REGISTRY ABB=ON PLU=ON (CO (L) SN)/ELS (L)
        2/ELC.SUB
L4      37 SEA FILE=REGISTRY ABB=ON PLU=ON (C(L)SN)/ELS (L)
        2/ELC.SUB
L5      66 SEA FILE=REGISTRY ABB=ON PLU=ON (C (L) CO (L) SN)/ELS
        (L) 3/ELC.SUB
L6      694 SEA FILE=REGISTRY ABB=ON PLU=ON (CU(L) SN)/ELS (L)
        2/ELC.SUB
L7      76 SEA FILE=REGISTRY ABB=ON PLU=ON (C (L) CU (L) SN)/ELS
        (L) 3/ELC.SUB
L8      103068 SEA FILE=HCAPLUS ABB=ON PLU=ON L1
L9      505 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L10     81 SEA FILE=HCAPLUS ABB=ON PLU=ON L4
L11     11 SEA FILE=HCAPLUS ABB=ON PLU=ON L5
L12     5781 SEA FILE=HCAPLUS ABB=ON PLU=ON L6
L13     87 SEA FILE=HCAPLUS ABB=ON PLU=ON L7
L14     596 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 (L) ANOD? (L)
        BATTER?
L15     30 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 (L) PARTICLE#
L16     30 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND ELECTROCHEMICAL?
        /SC,SX

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L17 48 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 (L) ANOD?  
 L18 44 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 (L) (BATTER? OR  
 CELL#)  
 L19 44 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND ELECTROCHEMICAL?  
 /SC,SX  
 L20 8 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 (L) (ELECTROD? OR  
 ANOD?)  
 L21 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND (BATTER? OR  
 CELL#)  
 L26 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND (ELECTROD? OR  
 ANOD?)  
 L27 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND (BATTER? OR  
 CELL#)  
 L29 109 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 (L) ANOD? (L)  
 BATTER?  
 L31 22 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 AND PARTICLE#  
 L34 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L13 AND (ANOD? OR  
 ELECTROD?)  
 L35 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND (BATTER? OR  
 CELL#)  
 L37 19 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 OR L21 OR L26 OR  
 L27 OR L34 OR L35  
 L38 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L37 AND (1907-2003)/PRY,  
 AY,PY  
 L39 88 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L19 OR L30 OR  
 L31  
 L40 74 SEA FILE=HCAPLUS ABB=ON PLU=ON L39 AND (1907-2003)/PRY,  
 AY,PY  
 L41 71 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 NOT L38

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 17:40:56 ON 19 MAY 2006  
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=> d l41 1-71 ibib abs hitstr hitind

L41 ANSWER 1 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:591700 HCAPLUS  
 DOCUMENT NUMBER: 143:118028  
 TITLE: Anode active mass for secondary lithium  
 batteries, its manufacture, and secondary  
 lithium batteries and anode active material for  
 secondary lithium batteries using it  
 INVENTOR(S): Takakura, Akira; Matsubara, Keiko; Tsuno,  
 Toshiaki; Kim, Sung-Soo  
 PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005183253	A2	20050707	JP 2003-424423	200312 22
JP 3773514	B2	20060510	JP 2003-424423	

PRIORITY APPLN. INFO.:

200312  
22

&lt;--

AB The active mass comprises porous particles contg. H and  $\geq 1$  metals which can be alloyed with Li. The active mass is manufd. by dissolving H or a mixt. of H and an inert gas into a melt of the metals mentioned above and unidirectionally solidifying the melt for formation of H-contg. pores in the metals. Preferably, the metals are Si, Al, and/or Sn, or the metal is Si contg. Si phase, SiM phase (M = Ni, Co, As, B, Cr, Cu, Fe, Mg, Mn, Y), and X phase and/or SiX phase (X = Ag, Cu, Au; M = X  $\neq$  Cu). The batteries equipped with the active mass are also claimed. Since oxidn. of the anode is prevented by H, decompn. of an electrolytic soln. is suppressed, and the battery has excellent cycling performance. Since vol. expansion of the anode caused by alloying of the metals with Li is offset by the pores, powdering of the active mass is suppressed.

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)  
(manuf. of anode active mass comprising H-contg. porous metallic particles for Li batteries with excellent cycling performance)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-38

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

IT 1333-74-0, Hydrogen, uses 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 11107-19-0  
11109-42-5 12645-62-4 12661-90-4 12668-55-2 37299-94-8,  
Boron silicide 39365-72-5 50944-37-1 50955-74-3 53550-14-4  
58977-56-3 60866-76-4, Silicon arsenide

RL: DEV (Device component use); USES (Uses)  
(manuf. of anode active mass comprising H-contg. porous metallic particles for Li batteries with excellent cycling performance)

L41 ANSWER 2 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:522761 HCAPLUS

DOCUMENT NUMBER: 143:46050

TITLE: Anode material for secondary lithium battery and its manufacture

INVENTOR(S): Wada, Hitoshi; Kajita, Osamu; Sakai, Tetsuo

PATENT ASSIGNEE(S): Fukuda Metal Foil and Powder Co., Ltd., Japan;  
National Institute of Advanced Industrial  
Science & Technology

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005158305	A2	20050616	JP 2003-391229	

200311  
20

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PRIORITY APPLN. INFO.:

JP 2003-391229

200311  
20

&lt;--

AB The anode material is a composite powder, comprising a 1st metal component selected from Co, Cr, Fe, Mn, Mo, Nb, Ni, Ti, V, W, Zr and/or rare earth element, a 2nd metal component selected from Ag, Al, Au, Cu, In, Mg, Pd, Pt, Y, and/or Zn, a 3rd metal component selected from Ga, Ge, Sb, Si, and/or S, an alloy of the 2nd component and the 3rd component, and a carbonaceous component; where the composite powder contains the 1st metal component 5-20 at.%, the 2nd metal component 5-35 at.%, the 3rd metal component 20-55 at.%, and the carbonaceous component 5-50 at.% (total amt. of all 4 components is 100 at.%); and comprises  $\geq 10\%$  primary particles having particle size 10-500 nm. The anode material is manufd. by mech. alloying a mixt. of the 1st metal component, the 2nd metal component, and the 3rd metal component to obtain a composite powder; and mixing the composite powder with the carbonaceous component followed by mech. alloying.

IT 12668-36-9

RL: DEV (Device component use); USES (Uses)  
(compsn. and manuf. of anode materials contg. composite  
powders of carbonaceous materials, metals and metal alloys for  
secondary lithium batteries)

RN 12668-36-9 HCAPLUS

CN Copper alloy, nonbase, Cu,Sn (9CI) (CA INDEX NAME)

Component      Component  
                 Registry Number

=====+=====

Cu	7440-50-8
Sn	7440-31-5

IC ICM H01M004-38

ICS B22F001-00; C22C012-00; C22C013-02; H01M004-02; H01M004-62;  
H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-95-4,  
Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7,  
Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium,  
uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses  
7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-31-5, Tin,  
uses 7440-32-6, Titanium, uses 7440-36-0, Antimony, uses  
7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8,  
Copper, uses 7440-54-2, Gadolinium, uses 7440-55-3, Gallium,  
uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses  
7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7,  
Zirconium, uses 7440-74-6, Indium, uses 11099-22-2 11105-41-2  
11109-42-5 11124-13-3 11144-61-9 12645-62-4 12668-36-9  
12785-32-9 12785-33-0 37274-59-2 39313-97-8 50941-27-0  
51402-57-4 53218-63-6 53550-14-4 53608-05-2 141850-96-6  
164058-34-8

RL: DEV (Device component use); USES (Uses)  
(compsn. and manuf. of anode materials contg. composite  
powders of carbonaceous materials, metals and metal alloys for  
secondary lithium batteries)

L41 ANSWER 3 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:253910 HCAPLUS

DOCUMENT NUMBER: 142:339030

TITLE: Anode material for secondary lithium battery and  
its manufacture

INVENTOR(S): Wada, Hitoshi; Kajita, Osamu; Sakai, Tetsuo

PATENT ASSIGNEE(S): Fukuda Metal Foil and Powder Co., Ltd., Japan;  
National Institute of Advanced Industrial  
Science and Technology

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005078999	A2	20050324	JP 2003-309912	20030902

PRIORITY APPLN. INFO.: JP 2003-309912  
 20030902

AB The material comprises a composite powder, made of an alloy of 1st component which contains  $\geq 1$  element selected from Ag, Al, Au, Ca, Cu, Fe, In, Mg, Pd, Pt, Y, Zn and Ti, V, Cr, Mn, Co, Ni, Y, Zr, Nb, Mo, Hf, Ta, W and rare earth elements and 2nd component which contains  $\geq 1$  element selected from Ga, Ge, Sb, Si and Sn; where the composite powder contains the 1st component 40-60 at.% and the 2nd component 40-60 at.% (based on total amt. of the 1st and the 2nd components as 100 at.%); and has  $\geq 10\%$  primary particles having particle size 10-500 nm. The anode material is manufd. by mixing a raw material, contg. the 1st and the 2nd components; and mech.-alloying the mixt.

IT 12787-61-0P, Copper 54.5, tin 45.5 (atomic)  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
 (comps. and manuf. anode materials contg. alloys for secondary lithium batteries)

RN 12787-61-0 HCAPLUS

CN Tin alloy, base, Sn 61,Cu 39 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	61	7440-31-5
Cu	39	7440-50-8

IC ICM H01M004-38

ICS B22F001-00; B22F001-02; C22C012-00; C22C016-00; C22C019-03; C22C019-07; C22C030-00; H01M004-02; H01M004-42; H01M004-46

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 12727-60-5P, Indium 50, tin 50 (atomic) 12787-61-0P, Copper 54.5, tin 45.5 (atomic) 37192-34-0P 37365-43-8P, Platinum 50, tin 50 (atomic) 39285-19-3P, Silver 52, tin 48 (atomic) 39445-99-3P, Gold 50, tin 50 (atomic) 52896-58-9P, Gallium 50, silicon 50 (atomic) 56392-59-7P, Antimony 50, zinc 50 (atomic) 57888-99-0P, Germanium 50, iron 50 (atomic) 72515-82-3P, Gallium 50, gold 50 (atomic) 82879-92-3P, Gold 50, silicon 50 (atomic) 89498-06-6P, Copper 50, germanium 50 (atomic) 93510-64-6P 93510-71-5P 107482-99-5P 107501-09-7P 117036-30-3P, Aluminum 50, silicon 50 (atomic) 117816-43-0P, Antimony 50, copper 50 (atomic) 124280-46-2P, Antimony 50, gold 50 (atomic) 132598-09-5P, Aluminum 50, germanium 50 (atomic) 135866-51-2P, Copper 50, silicon 50 (atomic) 137825-50-4P, Gallium 50, silver 50 (atomic) 145634-33-9P 170473-99-1P 529474-44-0P 529474-49-5P 660388-40-9P 660388-41-0P 660388-42-1P 660388-43-2P 660388-44-3P 660388-45-4P 660388-46-5P 660388-49-8P 697300-30-4P 702645-12-3P, Antimony 15.6, silver 36.4, tin 48 (atomic) 848441-13-4P 848441-15-6P 848441-16-7P 848441-17-8P 848441-18-9P 848441-19-0P 848441-20-3P 848441-21-4P

848441-22-5P 848441-23-6P 848441-24-7P 848441-25-8P  
848441-26-9P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
(Preparation); USES (Uses)  
(comps. and manuf. anode materials contg. alloys for  
secondary lithium batteries)

L41 ANSWER 4 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1037415 HCAPLUS

DOCUMENT NUMBER: 142:25874

TITLE: Secondary nonaqueous electrolyte battery and its  
manufacture

INVENTOR(S): Sato, Toshitada; Shimamura, Harunari; Ohyama,  
Hideaki; Bito, Yasuhiko

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: PCT Int. Appl., 74 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004105152	A2	20041202	WO 2004-JP7294	200405 21
<--				
WO 2004105152	A3	20050210		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2005011802	A2	20050113	JP 2004-150624	200405 20
<--				
EP 1638158	A2	20060322	EP 2004-734368	200405 21
<--				
R: DE, FR, GB CN 1768438	A	20060503	CN 2004-80008500	200405 21
<--				
PRIORITY APPLN. INFO.:			JP 2003-145346	A 200305 22
<--				
			WO 2004-JP7294	W 200405 21

AB The battery has a Li-intercalating cathode, a Li-intercalating  
anode, and a Li+-conductive electrolyte; where the anode, contg.  
active mass particles on a collector; where the active

material particles contain Si and R element (R = Sn, In, Ga, Pb and/or Bi) and a R element contg. metallic bond is formed between the active material particles. The battery is manufd. by applying a slurry, comprising Si contg. active mass particles, on a collector, having Cu content  $\geq 95$  mass%; drying the slurry; forming a 2nd sheet by forming a R element (R = Sn, In, Ga, Pb and/or Bi) contg. film on the surface of the active mass particles; and heat-treating the 2nd sheet in a nonoxidative atm. at 80-350°.

IT 12019-61-3 12054-11-4 12621-69-1  
39445-33-5

RL: DEV (Device component use); USES (Uses)  
(anodes contg. silicon intermetallic compds. in manuf.  
of secondary lithium batteries)

RN 12019-61-3 HCAPLUS

CN Copper, compd. with tin (3:1) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	3	7440-50-8
Sn	1	7440-31-5

RN 12054-11-4 HCAPLUS

CN Copper, compd. with tin (1:1) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	1	7440-50-8
Sn	1	7440-31-5

RN 12621-69-1 HCAPLUS

CN Copper alloy, base, Cu 80, Sn 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Cu	80	7440-50-8
Sn	20	7440-31-5

RN 39445-33-5 HCAPLUS

CN Copper, compd. with tin (4:1) (6CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	4	7440-50-8
Sn	1	7440-31-5

IC ICM H01M

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7439-92-1, Lead, uses 7440-02-0, Nickel, uses 7440-21-3,  
Silicon, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses  
7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-69-9,  
Bismuth, uses 7440-74-6, Indium, uses 12019-61-3  
12054-11-4 12059-14-2, Nickel silicide 12621-69-1  
12626-76-5, Iron silicide 12643-20-8, Copper silicide  
12738-91-9, Titanium silicide 39445-33-5

RL: DEV (Device component use); USES (Uses)  
(anodes contg. silicon intermetallic compds. in manuf.  
of secondary lithium batteries)

L41 ANSWER 5 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1019065 HCAPLUS

DOCUMENT NUMBER: 142:9292

TITLE: Anode for secondary battery and secondary  
nonaqueous electrolyte battery  
INVENTOR(S): Kato, Yoshikazu  
PATENT ASSIGNEE(S): Sony Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004335379	A2	20041125	JP 2003-132191	20030509

PRIORITY APPLN. INFO.: JP 2003-132191 20030509

AB The anode has an anode mixt., contg. an active mass capable of doping/dedoping Li, and an org. additive, comprising an org. acid and/or an org. acid salt, added to the anode mixt. The battery has the above anode, a cathode, having a cathode mixt. which contains an active mass capable of doping/dedoping Li, and an electrolyte soln. which contains an electrolyte salt.

IT 39286-52-7  
RL: DEV (Device component use); USES (Uses)  
(anodes contg. org. additives for secondary lithium batteries)

RN 39286-52-7 HCAPLUS  
CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Sn	7440-31-5

IC ICM H01M004-62  
ICS H01M004-02; H01M004-38; H01M010-40  
CC 52-5 (Electrochemical, Radiational, and Thermal Energy Technology)  
IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium hexafluorophosphate 39286-52-7  
RL: DEV (Device component use); USES (Uses)  
(anodes contg. org. additives for secondary lithium batteries)

L41 ANSWER 6 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1019056 HCAPLUS  
DOCUMENT NUMBER: 142:9210  
TITLE: Anode material for secondary nonaqueous electrolyte battery, its manufacture, and the battery which uses the material  
INVENTOR(S): Zhang, Shou-wu; Kuba, Kanji; Watarai, Yusuke  
PATENT ASSIGNEE(S): Mitsubishi Materials Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004335335	A2	20041125	JP 2003-131275	20030509

PRIORITY APPLN. INFO.: <-- JP 2003-131275 20030509

AB The anode material comprises composite particles, having ceramics coated on a part of Li-intercalating mineral particles; where the mineral particles contain Si, Sn and/or Zn as constituent element; and the ceramics are composed of an oxide, a nitride, or a carbide, which contains Si, Ti, Al and/or Zr, and covers 20-95% total surface of the mineral particles. The anode material is manufd. by prepg. 0.02-20  $\mu$ m av. particle sized mineral particles, comprising  $\geq 1$  substance selected from Si, metal silicide, B doped Si, P doped Si, Zn, Sn, Zn contg. solid soln., Sn contg. solid soln., Zn contg. intermetallic compds., and Sn contg. intermetallic compds.; soling a precursor org. mol. soln., which contains Si, Ti, Al and/or Zr, by hydrolysis reaction and dehydrative polycondensation; mixing the mineral particles with the sol to coat the sol on the mineral particles; gelatinizing the sol; and firing the gel in a nonoxidative atm. at 600-1300° for 0.5-3 h to form composite particles which have the ceramics coated on a part of the mineral particles. The battery uses the above material as an anode active mass.

IT 12019-69-1

RL: DEV (Device component use); USES (Uses)  
(manuf. of anode materials contg. ceramics coated mineral particle for secondary batteries)

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	6	7440-50-8
Sn	5	7440-31-5

IC ICM H01M004-38

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery anode mineral ceramics composite particle manuf

IT Battery anodes

Secondary batteries

(manuf. of anode materials contg. ceramics coated mineral particle for secondary batteries)

IT 1344-28-1, Alumina, uses 7440-21-3, Silicon, uses 7440-21-3D,

Silicon, B doped 7440-21-3D, Silicon, P doped 12019-69-1

12688-08-3, Carbon titanium oxide 39345-87-4, Silicon carbide

oxide 171089-01-3, Iron silicide (Fe<sub>0.2</sub>Si<sub>0.8</sub>)

RL: DEV (Device component use); USES (Uses)

(manuf. of anode materials contg. ceramics coated mineral particle for secondary batteries)

L41 ANSWER 7 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1019055 HCAPLUS

DOCUMENT NUMBER: 142:9209



TITLE: Anode material for secondary nonaqueous electrolyte battery, its manufacture, and the battery which uses the material  
 INVENTOR(S): Chang, Shou-Bin; Kuba, Kanji; Watarai, Yusuke  
 PATENT ASSIGNEE(S): Mitsubishi Materials Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004335334	A2	20041125	JP 2003-131274	20030509

PRIORITY APPLN. INFO.: <-- JP 2003-131274 20030509

AB The anode material comprises composite particles, having ceramics coated on a part or whole part of mineral particles which are capable of intercalating/decalating Li<sup>+</sup>; where the mineral particles contain Si, Sn and/or Zn as constituent element; and the ceramics are composed of an oxide, a nitride, or a carbide, which contains Si, Ti, Al and/or Zr. The anode material is manufd. by prepg. 0.02-20 µm av. particle sized mineral particles, comprising ≥1 substance selected from Si, metal silicide, B doped Si, P doped Si, Zn, Sn, Zn contg. solid soln., Sn contg. solid soln., Zn contg. intermetallic compds., and Sn contg. intermetallic compds.; mixing the mineral particles with a precursor org. mol. soln., contg. Si, Ti, Al and/or Zr; gelatinizing the mixt. by hydrolysis reaction and dehydrative polycondensation; firing the gel mixt. in a nonoxidative atm. at 600-1300° for 0.5-3 h to form composite particles which have the ceramics coated on a part or whole part of the mineral particles. The battery uses the above material as an anode active mass.

IT 12019-69-1

RL: DEV (Device component use); USES (Uses)  
 (manuf. of anode materials contg. ceramics coated mineral particle for secondary batteries)

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	6	7440-50-8
Sn	5	7440-31-5

IC ICM H01M004-38

ICS H01M004-02; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery anode mineral ceramics composite particle manuf

IT Battery anodes

Secondary batteries

(manuf. of anode materials contg. ceramics coated mineral particle for secondary batteries)

IT 1344-28-1, Alumina, uses 7440-21-3, Silicon, uses 7440-21-3D, Silicon, B doped 7440-21-3D, Silicon, P doped 12019-69-1 12688-08-3, Carbon titanium oxide 39345-87-4, Silicon carbide

oxide 171089-01-3, Iron silicide (Fe<sub>0.2</sub>Si<sub>0.8</sub>)  
 RL: DEV (Device component use); USES (Uses)  
 (manuf. of anode materials contg. ceramics coated  
 mineral particle for secondary batteries)

L41 ANSWER 8 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:963598 HCAPLUS  
 DOCUMENT NUMBER: 141:413558  
 TITLE: anode active material for nonaqueous electrolyte  
 secondary battery  
 INVENTOR(S): Nakamoto, Takayuki; Bito, Yasuhiko  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004319469	A2	20041111	JP 2004-109346	20040401
US 2004241548	A1	20041202	US 2004-816221	20040402

PRIORITY APPLN. INFO.: JP 2003-99523 A 20030402

AB The anode active material consists of an inner layer contg. alloys and a surface layer of Si or Sn oxide and having an av. thickness of 0.2-1000 nm. The alloy is selected from combinations of Si or Sn with Ti, Co, Ni, Cu, Mg, Zr, V, Mo, W, Mn, and Fe. The product has high Li absorption and low reaction resistance.

IT 12297-65-3 134807-88-8  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (anode active material for nonaq. electrolyte secondary battery)

RN 12297-65-3 HCAPLUS  
 CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	1	7440-31-5

RN 134807-88-8 HCAPLUS  
 CN Cobalt, compd. with tin (1:3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	3	7440-31-5

IC ICM H01M004-38  
 ICS H01M004-02; H01M004-48; H01M010-40  
 CC 52-1 (Electrochemical, Radiational, and Thermal Energy)

## Technology)

Section cross-reference(s): 55

IT 12039-83-7, Titanium silicide (TiSi<sub>2</sub>) 12163-70-1, Molybdenum silicide (MoSi<sub>3</sub>) 12166-63-1 12297-65-3 12504-63-1, Titanium silicide (TiSi<sub>3</sub>) 39424-47-0, Magnesium silicide (MgSi) 65453-90-9 67725-23-9, Tungsten silicide (WSi<sub>3</sub>) 73588-36-0 81827-65-8, Zirconium silicide (ZrSi<sub>3</sub>) 90157-89-4, Nickel silicide (NiSi<sub>3</sub>) 90157-90-7, Vanadium silicide (VSi<sub>3</sub>) 90157-92-9, Cobalt silicide (CoSi<sub>3</sub>) 90157-93-0, Iron silicide (FeSi<sub>3</sub>) 90157-94-1, Copper silicide (CuSi<sub>3</sub>) 134776-39-9 134807-88-8 210885-35-1 274673-54-0 644986-47-0, Manganese silicide (MnSi<sub>3</sub>) 791838-52-3 791838-53-4 791838-55-6 791838-56-7 791838-57-8 791838-59-0, Cobalt nickel silicide (Co<sub>0.5</sub>Ni<sub>0.5</sub>Si<sub>3</sub>) 791838-60-3  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (anode active material for nonaq. electrolyte secondary battery)

L41 ANSWER 9 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:609447 HCAPLUS

DOCUMENT NUMBER: 141:143222

TITLE: Anode material for secondary nonaqueous lithium battery, the anode, and the battery  
 INVENTOR(S): Senna, Tamotsu; Uono, Hiroyuki; Kim, Dae-Che; Fuse, Toru

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004213927	A2	20040729	JP 2002-379298	20021227

PRIORITY APPLN. INFO.:

<--  
 JP 2002-379298

200212  
 27

AB The anode material contains a carbonaceous material, a graphitic material, and nanosize metal particles, selected from Ag, Zn, Al, Ga, In, Si, Ge, Sn, and Pb, having av. diam. 10-200 nm at 3-20% of the total anode material wt.

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)  
 (carbonaceous and graphitic anode materials contg. nanosize metal particles for secondary lithium batteries)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-58

ICS H01M004-02; H01M004-04; H01M004-38; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7440-21-3,

Silicon, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-66-6, Zinc, uses 7440-74-6, Indium, uses 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)  
(carbonaceous and graphitic anode materials contg. nanosize metal particles for secondary lithium batteries)

L41 ANSWER 10 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:530400 HCAPLUS  
DOCUMENT NUMBER: 141:91791  
TITLE: Secondary nonaqueous electrolyte battery  
INVENTOR(S): Nishino, Takatomo; Fujino, Takemasa; Inoue, Hiroshi  
PATENT ASSIGNEE(S): Sony Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004186035	A2	20040702	JP 2002-352868	20021204

PRIORITY APPLN. INFO.: JP 2002-352868

20021204

AB The battery has a Li intercalating alloy contg.  $\geq 2$  of B, Al, Ga, In, Si, Ge, Sn, Pb, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and Zn as active mass for its anode; a Li intercalating cathode; and a electrolyte soln. contg. an electrolyte salt and a nonaq. solvent; where the anode contains a nonionic surfactant at  $\leq 0.7\%$  the wt. of the anode active mass. The surfactant is selected from polyoxyethylene alkyl ether  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_n(\text{CH}_2)_m\text{CH}_3$  and polyoxyethylene alkylphenyl ether.

IT 88872-71-3  
RL: DEV (Device component use); USES (Uses)  
(anodes contg. nonionic surfactants for secondary lithium batteries)

RN 88872-71-3 HCAPLUS  
CN Tin alloy, base, Sn 70, Co 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	70	7440-31-5
Co	30	7440-48-4

IC ICM H01M004-02  
ICS H01M004-38; H01M004-62; H01M010-40  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
IT 88872-71-3 95079-63-3 146660-28-8 663618-38-0  
716378-63-1 716378-64-2  
RL: DEV (Device component use); USES (Uses)  
(anodes contg. nonionic surfactants for secondary lithium batteries)

L41 ANSWER 11 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:530340 HCAPLUS  
 DOCUMENT NUMBER: 141:91776  
 TITLE: Electrode material for secondary nonaqueous electrolyte battery, the electrode, and the battery  
 INVENTOR(S): Sawa, Takao; Kono, Tatsuoki; Matsuno, Shinsuke; Takami, Norio  
 PATENT ASSIGNEE(S): Toshiba Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004185881	A2	20040702	JP 2002-349197	20021129

PRIORITY APPLN. INFO.: JP 2002-349197  
 20021129

AB The material is represented as  $\text{Sn}a\text{Co}b\text{Mc}t\text{dXe}$  or  $\text{Sn}a(\text{Co}1-\text{yFe}y)\text{bMc}t\text{dXe}$  ( $M = \text{Ni}, \text{Cu}, \text{Mn}, \text{V}$ , and/or  $\text{Cr}$ ;  $T = \text{Ti}, \text{Zr}, \text{Hf}, \text{Nb}, \text{Ta}, \text{Mo}, \text{W}$ , and/or rare earth elements;  $X = \text{Si}, \text{Al}, \text{Sb}$ , and/or  $\text{In}$ ;  $a+b+c+d+e = 100$ ;  $a = 40-50$ ;  $b = 35-55$ ;  $c = 0-20$ ;  $d = 0-10$ ;  $e = 0-20$ ;  $0 < y \leq 0.8$ ) and comprises an alloy, contg. a hexagonal structured crystal phase. The battery has an anode contg. the above mat, a cathode, and a nonaq. electrolyte.

IT 12297-65-3 12526-67-9  
 RL: DEV (Device component use); USES (Uses)  
 (compsns. of anode materials contg. cobalt tin composite alloys for secondary batteries)

RN 12297-65-3 HCAPLUS  
 CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	1	7440-31-5

RN 12526-67-9 HCAPLUS  
 CN Cobalt, compd. with tin (3:2) (7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	3	7440-48-4
Sn	2	7440-31-5

IC ICM H01M004-38  
 ICS C22C013-00; C22C019-07; H01M004-02; H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl carbonate 12023-00-6 12190-79-3, Cobalt lithium oxide ( $\text{CoLiO}_2$ ) 12297-65-3 12526-60-2 12526-62-4 12526-63-5 12526-64-6 12526-67-9 12794-61-5 21324-40-3, Lithium hexafluorophosphate 109118-19-6 110445-75-5 110445-81-3 716378-22-2 716378-24-4 716378-27-7 716378-31-3 716378-33-5 716378-34-6 716378-35-7 716378-36-8 716378-37-9 716378-38-0

716378-39-1 716378-40-4 716378-41-5 716378-42-6 716378-43-7  
 716378-44-8 716378-45-9 716378-46-0 716378-47-1 716378-48-2  
 716378-49-3 716378-50-6 716378-51-7 716378-52-8 716378-53-9  
 716378-54-0 716378-55-1 716378-56-2 716378-57-3 716378-58-4

RL: DEV (Device component use); USES (Uses)  
 (comps. of anode materials contg. cobalt tin composite  
 alloys for secondary batteries)

L41 ANSWER 12 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:494059 HCAPLUS

DOCUMENT NUMBER: 141:57045

TITLE: Anode for secondary nonaqueous electrolyte  
 battery, its manufacture, and the battery

INVENTOR(S): Musha, Shinichi; Honda, Hitohiko; Sakaguchi,  
 Yoshiki; Yasuda, Kiyotaka; Modeki, Akihiro;  
 Matsushima, Tomoyoshi; Taguchi, Takeo;  
 Taniguchi, Kazuko; Dobashi, Makoto

PATENT ASSIGNEE(S): Mitsui Mining & Smelting Co., Ltd., Japan

SOURCE: PCT Int. Appl., 80 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004051768	A1	20040617	WO 2003-JP15044	20031125
<p>W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW</p> <p>RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG</p>				
JP 2004241329	A2	20040826	JP 2003-31636	20030207
JP 2004228059	A2	20040812	JP 2003-105797	20030409
JP 3750117	B2	20060301		
JP 2005044672	A2	20050217	JP 2003-278615	20030723
JP 3643108	B2	20050427		
JP 2005063767	A2	20050310	JP 2003-290726	20030808
JP 2005129264	A2	20050519	JP 2003-360938	20031021

AU 2003302519	A1	20040623	AU 2003-302519	200311 25
BR 2003015457	A	20050823	BR 2003-15457	200311 25
EP 1566855	A1	20050824	EP 2003-812300	200311 25
<p style="text-align: center;">&lt;--</p> <p style="text-align: center;">&lt;--</p> <p style="text-align: center;">&lt;--</p> <p style="text-align: center;">R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK</p>				
US 2005208379	A1	20050922	US 2005-28735	200501 05
US 2006051675	A1	20060309	US 2005-529487	200503 28
<p style="text-align: center;">&lt;--</p> <p>PRIORITY APPLN. INFO.: JP 2002-348990 A 200211 29</p> <p style="text-align: center;">&lt;--</p> <p>JP 2003-31636 A 200302 07</p> <p style="text-align: center;">&lt;--</p> <p>JP 2003-105797 A 200304 09</p> <p style="text-align: center;">&lt;--</p> <p>JP 2003-278615 A 200307 23</p> <p style="text-align: center;">&lt;--</p> <p>JP 2003-290726 A 200308 08</p> <p style="text-align: center;">&lt;--</p> <p>JP 2003-360938 A 200310 21</p> <p style="text-align: center;">&lt;--</p> <p>WO 2003-JP15044 W 200311 25</p> <p style="text-align: center;">&lt;--</p>				
AB	<p>The anode has an active mass structure, contg. a conductive material having low capability of forming a compd. with Li, on 1 or both sides of a collector; where the active mass structure comprises 5-80 % active mass <b>particles</b> contg. a material having high capability forming a compd. with Li. The anode is manufd. by applying a slurry contg. the active mass <b>particles</b>, a conductive carbonaceous material, a binder, and a dild. solvent on a collector followed by drying to form an active mass layer; and coating the material having low capability of forming the Li compd. on the active mass layer by electroplating, sputtering, chem. vapor deposition, or chem. vapor deposition to form a surface coating layer. The battery has the above anode.</p>			
IT	<p>55918-93-9 60225-00-5 76297-68-2          RL: DEV (Device component use); USES (Uses)          (manuf. of <b>anodes</b> contg. coating layers for secondary</p>			

## lithium batteries)

RN 55918-93-9 HCAPLUS  
CN Tin alloy, base, Sn 60,Cu 40 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	60	7440-31-5
Cu	40	7440-50-8

RN 60225-00-5 HCAPLUS  
CN Tin alloy, base, Sn 90,Cu 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	90	7440-31-5
Cu	10	7440-50-8

RN 76297-68-2 HCAPLUS  
CN Tin alloy, base, Sn 75,Cu 25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	75	7440-31-5
Cu	25	7440-50-8

IC ICM H01M004-02  
ICS H01M004-38; H01M004-64; H01M004-04; H01M010-40  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
IT 7440-02-0, Nickel, uses 7440-21-3, Silicon, uses 7440-22-4,  
Silver, uses 7440-31-5, Tin, uses 7440-48-4, Cobalt, uses  
7440-50-8, Copper, uses 12645-63-5 24937-79-9, PVDF 37316-10-2  
39451-99-5 55918-93-9 57655-76-2 60225-00-5  
76297-68-2 79933-53-2 84444-80-4 96208-32-1  
109166-32-7, Silicon carbide (Si0.63C0.37) 109166-36-1, Silicon  
carbide (Si0.39C0.61) 109166-37-2, Silicon carbide (Si0.22C0.78)  
126603-77-8, Silicon carbide (Si0.1C0.9) 129827-29-8 166259-81-0  
172173-80-7 194346-72-0 207685-67-4 217076-77-2 705252-93-3  
705252-94-4 705252-95-5 705252-96-6 705252-97-7 705252-98-8  
705252-99-9 705253-00-5 705253-01-6 705253-02-7 705253-03-8  
705253-04-9 705253-05-0 705253-06-1 705253-07-2 705253-08-3  
705253-09-4 705253-10-7 705253-11-8  
RL: DEV (Device component use); USES (Uses)  
(manuf. of anodes contg. coating layers for secondary  
lithium batteries)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L41 ANSWER 13 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:430075 HCAPLUS  
DOCUMENT NUMBER: 140:409668  
TITLE: Anode with current collector having converted  
tin alloy coating for secondary lithium battery  
INVENTOR(S): Kashima, Hajime; Maki, Fumihiko  
PATENT ASSIGNEE(S): Nihon Kagaku Sangyo Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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Ross Shipe EIC 1700 Remsen 4B31 571/272-6018



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JP 2004152564      A2      20040527      JP 2002-315351
                                           200210
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PRIORITY APPLN. INFO.:          JP 2002-315351
                                           200210
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AB  The claimed anode is equipped with a Sn or Sn alloy coating formed
    on a current collector, where the coating is converted by heat
    treatment to give an alloy phase, free from a Sn phase, of the Sn or
    the Sn alloy-forming metal with a current-collector metal, e.g., Cu.
    The resulting battery provides high energy d. and long cycle life.
IT  190371-00-7
    RL: CPS (Chemical process); PEP (Physical, engineering or chemical
        process); PROC (Process)
        (plating; anode with copper current collector having
        converted tin alloy coating for secondary lithium battery
        )
RN  190371-00-7  HCAPLUS
CN  Tin alloy, base, Sn 93,Co 7 (9CI)  (CA INDEX NAME)

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Component	Component Percent	Component Registry Number
Sn	93	7440-31-5
Co	7	7440-48-4

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IC  ICM  H01M004-02
    ICS  H01M004-38; H01M004-64; H01M010-40
CC  52-2 (Electrochemical, Radiational, and Thermal Energy
    Technology)
IT  7440-31-5, Tin, processes  11110-83-1  12668-36-9  37292-50-5
    190371-00-7
    RL: CPS (Chemical process); PEP (Physical, engineering or chemical
        process); PROC (Process)
        (plating; anode with copper current collector having
        converted tin alloy coating for secondary lithium battery
        )

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L41 ANSWER 14 OF 71  HCAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:    2004:291704  HCAPLUS
DOCUMENT NUMBER:     140:306770
TITLE:               Anode material containing Group 14 element and
                    secondary lithium battery
INVENTOR(S):         Nishino, Takatomo; Inoue, Hiroshi
PATENT ASSIGNEE(S):  Sony Corp., Japan
SOURCE:              Jpn. Kokai Tokkyo Koho, 15 pp.
                    CODEN: JKXXAF
DOCUMENT TYPE:       Patent
LANGUAGE:            Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

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PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004111151	A2	20040408	JP 2002-270367	200209 17

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PRIORITY APPLN. INFO.:          JP 2002-270367
                                           200209
                                           17

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AB The claimed material consists of **particles** contg.  
 ≥1 of Group 14 elements excluding C, where the  
**particle** satisfies its circumscribing rectangular  
 parallelepiped having 3 side length A, B, and C showing  $A \leq B \leq C$  and  $C/A \geq 2$ . Optionally, the material contains Sc, Ti,  
 V, Cr, Mn, Fe, Co, Ni, Cu, Zn, B, Al, Ga, In, and/or Ag. The  
 battery equipped with an anode contg. the irregular shaped  
**particles** provides high charging-discharging characteristics  
 and long cycle life.

IT 95079-63-3 663618-37-9

RL: DEV (Device component use); USES (Uses)  
 (anode contg. irregular shaped **particles**  
 contg. Group 14 element for secondary battery)

RN 95079-63-3 HCAPLUS

CN Copper alloy, base, Cu 55, Sn 45 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Cu	55	7440-50-8
Sn	45	7440-31-5

RN 663618-37-9 HCAPLUS

CN Tin alloy, base, Sn 69, Co 31 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	69	7440-31-5
Co	31	7440-48-4

IC ICM H01M004-58

ICS H01M004-02; H01M006-16; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)

ST anode Group 14 element **particle** shape secondary lithium  
 battery

IT Battery anodes

(anode contg. irregular shaped **particles** contg. Group  
 14 element for secondary battery)

IT Secondary batteries

(lithium; anode contg. irregular shaped **particles**  
 contg. Group 14 element for secondary battery)

IT 95079-63-3 201856-05-5 663618-37-9 663618-38-0

RL: DEV (Device component use); USES (Uses)

(anode contg. irregular shaped **particles**  
 contg. Group 14 element for secondary battery)

IT 7429-90-5, Aluminum, uses 7439-96-5, Manganese, uses 7440-02-0,  
 Nickel, uses 7440-20-2, Scandium, uses 7440-22-4, Silver, uses  
 7440-32-6, Titanium, uses 7440-42-8, Boron, uses 7440-47-3,  
 Chromium, uses 7440-55-3, Gallium, uses 7440-62-2, Vanadium,  
 uses 7440-66-6, Zinc, uses

RL: DEV (Device component use); USES (Uses)

(anode contg.; anode contg. irregular shaped **particles**  
 contg. Group 14 element for secondary battery)

L41 ANSWER 15 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:291703 HCAPLUS

DOCUMENT NUMBER: 140:324164

TITLE: Anode active mass containing carbon composite  
 and secondary lithium battery using it

INVENTOR(S): Nishino, Takatomo; Tanizaki, Hiroaki; Inoue,  
 Hiroshi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

DOCUMENT TYPE:	CODEN: JKXXAF
LANGUAGE:	Patent
FAMILY ACC. NUM. COUNT:	Japanese
PATENT INFORMATION:	1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004111150	A2	20040408	JP 2002-270366	20020917
			<--	
JP 3734169	B2	20060111		
US 2004131938	A1	20040708	US 2003-664446	20030918
			<--	
PRIORITY APPLN. INFO.:			JP 2002-270366	A 20020917

LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004058240	A1	20040325	US 2002-251067	20020920
CA 2498901	AA	20040401	CA 2003-2498901	20030820
WO 2004027898	A2	20040401	WO 2003-US26138	20030820
WO 2004027898	A3	20050127		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003258306	A1	20040408	AU 2003-258306	20030820
EP 1547171	A2	20050629	EP 2003-797859	20030820
JP 2006500738	T2	20060105	JP 2004-537679	20030820
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:				
			US 2002-251067	A
			WO 2003-US26138	W
AB An anode compn. is disclosed that includes an elastomeric polymer binder, a plurality of electrochem. active metal particles dispersed in the binder, an elec. conductive diluent, and an adhesion promoter that promotes adhesion among the particles, the diluent, and the binder. Also featured are lithium ion batteries featuring anodes made from these compns. IT 7440-31-5, Tin, uses RL: DEV (Device component use); USES (Uses) (particles; battery anode compns. having elastomeric binder and adhesion promoter) RN 7440-31-5 HCAPLUS				

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-62

INCL 429217000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 39, 56

IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-43-9, Cadmium, uses 7440-56-4, Germanium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses  
 RL: DEV (Device component use); USES (Uses)  
 (particles; battery anode compns.  
 having elastomeric binder and adhesion promoter)

L41 ANSWER 17 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:250487 HCAPLUS

DOCUMENT NUMBER: 140:273575

TITLE: Anode active mass for secondary nonaqueous electrolyte battery and its manufacture

INVENTOR(S): Takeshita, Yukiteru; Kohiyori, Motoji; Nagata, Tatsuo; Uenaka, Hideya; Higashida, Yasuto

PATENT ASSIGNEE(S): Sumitomo Metal Industries Ltd., Japan; Matsushita Electric Industrial Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004095469	A2	20040325	JP 2002-257810	20020903

PRIORITY APPLN. INFO.: JP 2002-257810

20020903

AB The anode active mass is a mech. ground material, having  $\geq 1$  Li reacting active phase and  $\geq 1$  inert phase contg.  $\geq 1$  elements selected from Group IIA, transition metal, Group IIIA, and Group IVA elements; where the peak intensity of  $\geq 1$  of the active phase in the x ray diffraction pattern is  $\leq 50\%$  its intensity before the grinding. The active mass is prepd. by mech. grinding a mixt. of the active and inert phases, without changing the percentage of the phases during the grinding.

IT 190664-12-1

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(compns. and manif. of mech. ground anode active mass contg. active and inert phases for secondary lithium batteries)

RN 190664-12-1 HCAPLUS

CN Tin alloy, base, Sn 87, Co 13 (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
=====+=====+=====		
Sn	87	7440-31-5
Co	13	7440-48-4

IC ICM H01M004-38  
ICS B22F001-00; B22F009-04; H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 11148-21-3 60866-77-5D, Silicon phosphide, co with silicon 139530-68-0 190664-12-1 216682-78-9 216682-84-7 367926-48-5 371921-04-9 403620-04-2 674336-67-5 674336-68-6 674336-69-7 674336-71-1 674336-73-3  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
(comps. and manuf. of mech. ground anode active mass contg. active and inert phases for secondary lithium batteries)

L41 ANSWER 18 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:232615 HCAPLUS  
DOCUMENT NUMBER: 141:108740  
TITLE: Nanosized LixCu6Sn5B particles prepared by borohydride reduction for secondary lithium batteries  
AUTHOR(S): Mladenov, M.; Zlatilova, P.; Lefterova, E.; Dragieva, I.  
CORPORATE SOURCE: CLEPS, BAS, Sofia, 1113, Bulg.  
SOURCE: Journal of the University of Chemical Technology and Metallurgy (2003), 38(2), 529-534  
CODEN: JUCTB3; ISSN: 1311-7629  
PUBLISHER: University of Chemical Technology and Metallurgy  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The electrochem. characteristics of Sn alloys, used in battery anodes, depend on the structure and size of the constituent particles. The synthesis of nanoparticles of Cu6Sn5 through borohydride redn. was studied and the optimum ratio between the concns. of the precursor metal salts used in the synthesis was established. Changes in the phase compn. of the alloy after electrochem. interaction were obsd. Cycling tests of model electrodes in Li-ion batteries indicated a higher discharge capacity (200 mA-h/g) for electrodes with the nanosized Cu-Sn alloy than for electrodes with pure nanosized Sn. Cycling stability was tested over 70 cycles and the nanosized composite material, CuxSny, showed good cycling stability. The main constituent in the particles is the intermetallic compd., LixCu6Sn5, synthesized using a complex-forming agent in the precursor salt soln. The electrochem. lithiation of this alloy entails displacement of Cu from the alloy and subsequent interaction of the Li with the Sn to form the phase Li4.4Sn.

IT 12787-61-0P  
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(nanosized particles prepd. through borohydride redn. for anodes of lithium batteries)

RN 12787-61-0 HCAPLUS  
CN Tin alloy, base, Sn 61,Cu 39 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	61	7440-31-5
Cu	39	7440-50-8

L41 ANSWER 19 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:219896 HCAPLUS  
DOCUMENT NUMBER: 140:238516  
TITLE: Battery using anode material including tin  
INVENTOR(S): Tanizaki, Hiroaki; Omaru, Atsuo  
PATENT ASSIGNEE(S): Sony Corporation, Japan  
SOURCE: U.S. Pat. Appl. Publ., 9 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

AB Provided is a battery with a higher capacity and superior charge-discharge cycle characteristics. A cathode contained in a package can and an anode contained in a package cup are laminated with a separator in between. The separator is impregnated with an electrolyte soln. formed by dissolving lithium salt in a solvent. The anode comprises a tin-contg. material including metallic tin and an intermetallic compd. including tin in the same particle

. A higher capacity and superior charge-discharge cycles can be obtained by the tin-contg. material.

IT 12019-61-3 12019-69-1 12297-65-3

12394-61-5 12526-67-9

RL: DEV (Device component use); USES (Uses)

(battery using anode material including tin)

RN 12019-61-3 HCAPLUS

CN Copper, compd. with tin (3:1) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	3	7440-50-8
Sn	1	7440-31-5

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	6	7440-50-8
Sn	5	7440-31-5

RN 12297-65-3 HCAPLUS

CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	1	7440-31-5

RN 12394-61-5 HCAPLUS

CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	2	7440-31-5

RN 12526-67-9 HCAPLUS

CN Cobalt, compd. with tin (3:2) (7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	3	7440-48-4
Sn	2	7440-31-5

IT 12682-91-6P 55918-93-9P 62186-40-7P

67828-86-8P 70797-67-0P 83746-47-8P

260805-53-6P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(battery using anode material including tin)

RN 12682-91-6 HCAPLUS

CN Tin alloy, base, Sn 62,Cu 38 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	62	7440-31-5
Cu	38	7440-50-8



RN 55918-93-9 HCAPLUS  
 CN Tin alloy, base, Sn 60,Cu 40 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	60	7440-31-5
Cu	40	7440-50-8

RN 62186-40-7 HCAPLUS  
 CN Copper alloy, base, Cu 50,Sn 50 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Cu	50	7440-50-8
Sn	50	7440-31-5

RN 67828-86-8 HCAPLUS  
 CN Tin alloy, base, Sn 80,Co 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	80	7440-31-5
Co	20	7440-48-4

RN 70797-67-0 HCAPLUS  
 CN Tin alloy, base, Sn 82,Co 18 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	82	7440-31-5
Co	18	7440-48-4

RN 83746-47-8 HCAPLUS  
 CN Tin alloy, base, Sn 65,Co 35 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	65	7440-31-5
Co	35	7440-48-4

RN 260805-53-6 HCAPLUS  
 CN Tin alloy, base, Sn 73,Co 27 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	73	7440-31-5
Co	27	7440-48-4

IC ICM H01M004-38  
 ICS H01M004-62; H01M004-48  
 INCL 429218100; 429232000; 429231100  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)  
 Section cross-reference(s): 56  
 IT 7440-31-5, Tin, uses 12019-61-3 12019-69-1  
 12023-00-6 12023-01-7 12297-65-3 12394-61-5  
 12526-67-9  
 RL: DEV (Device component use); USES (Uses)  
 (battery using anode material including tin)  
 IT 12682-91-6P 55918-93-9P 62186-40-7P

67828-86-8P 70797-67-0P 70993-37-2P  
 83746-47-8P 102984-63-4P 146660-29-9P 252231-06-4P  
 260805-53-6P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (battery using anode material including tin)

L41 ANSWER 20 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:180589 HCAPLUS

DOCUMENT NUMBER: 140:202475

TITLE: Anode active mass, its manufacture, and  
 secondary nonaqueous electrolyte battery

INVENTOR(S): Nishino, Takatomo; Tanizaki, Hiroaki; Inoue,  
 Hiroshi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004071391	A2	20040304	JP 2002-230136	200208 07
JP 3624417	B2	20050302	<--	
US 2004091775	A1	20040513	US 2003-629419	200307 29
US 6835226	B2	20041228	<--	
PRIORITY APPLN. INFO.:			JP 2002-230136	A 200208 07

AB The active mass is prepd. by mech. treating an alloy powder which  
 contains  $\geq 1$  element selected from group 13-14 elements  
 (excluding C and Tl). Another type of is prepd. by mech. alloying a  
 power raw material, which contains  $\geq 1$  element selected from  
 group 13-14 elements (excluding C and Tl), at a reaction temp.  
 $\leq 90^\circ$ . The battery has an anode, contg. the above  
 anode active mass; a cathode, contg. a Li compd. as cathode active  
 mass; and a nonaq. electrolyte soln.

IT 663618-37-9P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)

(manuf. of anode active mass contg. alloys of group  
 13-14 elements for secondary batteries)

RN 663618-37-9 HCAPLUS

CN Tin alloy, base, Sn 69, Co 31 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	69	7440-31-5
Co	31	7440-48-4

IC ICM H01M004-38

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)

IT 7439-93-2P, Lithium, uses 95079-63-3P 146660-28-8P

663618-37-9P 663618-38-0P 663618-39-1P  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
 (Preparation); USES (Uses)  
 (manuf. of anode active mass contg. alloys of group  
 13-14 elements for secondary batteries)

L41 ANSWER 21 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:98078 HCAPLUS  
 DOCUMENT NUMBER: 140:131153  
 TITLE: Battery electrode  
 INVENTOR(S): Ikeda, Konosuke; Tanabe, Katsuhisa; Murakami,  
 Toru  
 PATENT ASSIGNEE(S): Uemura Kogyo Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004039427	A2	20040205	JP 2002-194453	200207 03

<--

PRIORITY APPLN. INFO.: JP 2002-194453

200207  
03

<--

AB The electrode, esp for a secondary lithium battery anode, comprises  
 a 3-dimensional net substrate; a 1st plating layer on the substrate;  
 and a 2nd plating layer, having a compn. different from that of the  
 1st plating layer, on the 1st plating layer; and has a free vol. of  
 1-15%.

IT 39286-52-7  
 RL: DEV (Device component use); USES (Uses)  
 (2nd plating layer; anodes contg. plating coatings on  
 3-dimensional net substrates with controlled free vol. for  
 secondary lithium batteries)

RN 39286-52-7 HCAPLUS  
 CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Sn	7440-31-5

IC ICM H01M004-02  
 ICS H01M004-80; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)

IT 7440-31-5, Tin, uses 39286-52-7  
 RL: DEV (Device component use); USES (Uses)  
 (2nd plating layer; anodes contg. plating coatings on  
 3-dimensional net substrates with controlled free vol. for  
 secondary lithium batteries)

L41 ANSWER 22 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:78041 HCAPLUS  
 DOCUMENT NUMBER: 140:114272  
 TITLE: Secondary battery  
 INVENTOR(S): Takeuchi, Yoshiaki; Inoue, Hiroshi  
 PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004031217	A2	20040129	JP 2002-188039	20020627

PRIORITY APPLN. INFO.: <-- JP 2002-188039 20020627

AB The battery has a coiled stack contg. an electrolyte between a cathode and an anode having a pair of opposed collectors and an active mass layer on the collector; where the anode active mass contains particles selected from a Li-intercalating metal, a metalloid, an alloy, and/or a compd., and the free vol. of the anode active mass in the coil center side is larger than in the coil outer side before initial charging.

IT 12668-36-9  
 RL: DEV (Device component use); USES (Uses)  
 (secondary batteries contg. anode active mass  
 with controlled free vol. distribution for improved cycle life)

RN 12668-36-9 HCAPLUS  
 CN Copper alloy, nonbase, Cu,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cu	7440-50-8
Sn	7440-31-5

IC ICM H01M004-02  
 ICS H01M004-38; H01M004-58; H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 12668-36-9  
 RL: DEV (Device component use); USES (Uses)  
 (secondary batteries contg. anode active mass  
 with controlled free vol. distribution for improved cycle life)

L41 ANSWER 23 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2003:735270 HCAPLUS  
 DOCUMENT NUMBER: 139:263296  
 TITLE: Secondary nonaqueous electrolyte battery without anode deformation or electrolytic solution maldistribution and its manufacture  
 INVENTOR(S): Nakamoto, Takayuki; Nanai, Norishige; Bito, Yasuhiko; Kasamatsu, Shinji; Nitta, Yoshiaki  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003263979	A2	20030919	JP 2002-66651	

200203  
12

PRIORITY APPLN. INFO.:

<--  
JP 2002-66651200203  
12

AB In manufg. the battery, an anode is formed by filling an anode active substance with av. particle size d 0.5-50  $\mu$ m into a current collector having continuous pores, sp. surface area 0.002-0.06 m<sup>2</sup>/g, and porosity 60-97%. In the obtained anode, 10-25 vol.% of the continuous pores are filled with the active substance, and the rate of the bonding area between the active substance and the current collector to the surface area of the active substance is 5-40%. Since deformation of anode or maldistribution of an electrolytic soln. during charging and discharging is prevented, the battery has high capacity and long cycle life.

IT 12787-61-0

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(anode active substance; manuf. of nonaq. electrolyte battery without anode deformation or electrolytic soln. maldistribution for high capacity and long cycle life)

RN 12787-61-0 HCAPLUS

CN Tin alloy, base, Sn 61,Cu 39 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	61	7440-31-5
Cu	39	7440-50-8

IC ICM H01M004-02

ICS H01M004-38; H01M004-66; H01M004-80; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 56

IT 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 12787-61-0  
57952-74-6

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(anode active substance; manuf. of nonaq. electrolyte battery without anode deformation or electrolytic soln. maldistribution for high capacity and long cycle life)

L41 ANSWER 24 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:730892 HCAPLUS

DOCUMENT NUMBER: 140:131895

TITLE: Charge-discharge characteristics of tin and tin-cobalt alloy plating anodes for advanced lithium secondary batteries

AUTHOR(S): Sonoda, Tsukasa; Sakai, Tetsuo

CORPORATE SOURCE: Hyogo Prefectural Institute of Technology,  
Suma-ku, Kobe-shi, Hyogo, 654-0037, Japan

SOURCE: Hyomen Gijutsu (2003), 54(7), 492-493

CODEN: HYGIEX; ISSN: 0915-1869

PUBLISHER: Hyomen Gijutsu Kyokai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The effect of Co content of cyclic voltammograms and charge-discharge cycle characteristic was studied by using Sn-Co alloy plating anodes for Li secondary batteries. The film with a Co content of 4.3% demonstrated excellent charge-discharge cycle

characteristic.

IT 57886-64-3 648940-36-7

RL: DEV (Device component use); USES (Uses)  
(charge-discharge characteristics of tin and tin-cobalt alloy  
plating anodes for advanced lithium secondary  
batteries)

RN 57886-64-3 HCAPLUS

CN Tin alloy, base, Sn,Co (9CI) (CA INDEX NAME)

Component Component  
Registry Number

=====+=====+=====

Sn	7440-31-5
Co	7440-48-4

RN 648940-36-7 HCAPLUS

CN Tin alloy, base, Sn 96,Co 4.3 (9CI) (CA INDEX NAME)

Component Component Component  
Percent Registry Number

=====+=====+=====

Sn	96	7440-31-5
Co	4.3	7440-48-4

CC 56-6 (Nonferrous Metals and Alloys)

Section cross-reference(s): 52

IT 57886-64-3 648940-36-7

RL: DEV (Device component use); USES (Uses)  
(charge-discharge characteristics of tin and tin-cobalt alloy  
plating anodes for advanced lithium secondary  
batteries)

L41 ANSWER 25 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:675725 HCAPLUS

DOCUMENT NUMBER: 139:182901

TITLE: Anode active mass, secondary nonaqueous  
electrolyte battery, and their manufacture  
INVENTOR(S): Mizutani, Satoshi; Komaru, Atsuo; Nishino,  
Takatomo

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003242972	A2	20030829	JP 2002-43625	200202 20

PRIORITY APPLN. INFO.: JP 2002-43625

200202  
20

AB The anode active mass is particles of active mass, contg. transition  
metal(s) or Group 12-15 element(s) except C, coated with Co, Fe, Pd,  
Pt, Ni, Cu, Sn, Cr, Zn and/or their alloy; where the coating covers  
≥5% of the total particle surface and weighs 0.01-70% of the  
total mass. The battery uses the anode active mass for its anode.  
The anode active mass and the battery are prepd. by coating the  
active mass particles with the metal (alloy) layer.

IT 7440-31-5, Tin, uses

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (comps. and structure and manuf. of metal and alloy coated anode active mass particles for secondary lithium batteries)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-38

ICS H01M004-02; H01M004-04; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7440-02-0, Nickel, uses 7440-31-5, Tin, uses 7440-50-8, Copper, uses

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(comps. and structure and manuf. of metal and alloy coated anode active mass particles for secondary lithium batteries)

L41 ANSWER 26 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:586641 HCAPLUS

DOCUMENT NUMBER: 139:119947

TITLE: Anode for secondary battery and the battery using the anode

INVENTOR(S): Yamamoto, Hironori; Mori, Mitsuhiro; Iriyama, Jiro; Miyaji, Mariko; Utsuki, Koji; Sakauchi, Hiroshi; Miura, Tamaki; Yamazaki, Ikiko

PATENT ASSIGNEE(S): NEC Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003217574	A2	20030731	JP 2002-13749	20020123
WO 2003063270	A1	20030731	WO 2003-JP566	20030122
US 2005147888	A1	20050707	US 2003-502268	20030122
CN 1639889	A	20050713	CN 2003-804419	20030122

PRIORITY APPLN. INFO.:

JP 2002-13749

A

20020123

<--  
 WO 2003-JP566 W 200301  
 22

AB The anode, capable of intercalating and decalating Li+, comprises an alloy layer: contg. a 1st metal which is alloyable with Li, or Li, and a 2nd metal which is not alloyable with Li; or a composite oxide layer.

IT 39286-52-7  
 RL: DEV (Device component use); USES (Uses)  
 (anodes contg. alloy or composite oxide layers for secondary lithium batteries)

RN 39286-52-7 HCAPLUS

CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)

Component Component  
 Registry Number

====+=====  
 Co 7440-48-4  
 Sn 7440-31-5

IC ICM H01M004-02

ICS H01M004-38; H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7439-93-2, Lithium, uses 7440-31-5, Tin, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 11110-83-1 12039-88-2, Tungsten disilicide (WSi2) 12643-20-8, Copper silicide 12668-36-9 39286-52-7 39302-37-9, Lithium titanium oxide 66102-93-0, Cobalt lithium nitride

RL: DEV (Device component use); USES (Uses)  
 (anodes contg. alloy or composite oxide layers for secondary lithium batteries)

L41 ANSWER 27 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:414418 HCAPLUS

DOCUMENT NUMBER: 138:404347

TITLE: Anode containing tinplated current collector and its manufacture for secondary lithium battery  
 INVENTOR(S): Kitamura, Shingo; Obata, Keigo; Sakai, Tetsuo; Sonoda, Tsukasa

PATENT ASSIGNEE(S): Daiwa Kasei Kenkyusho K. K., Japan; National Institute of Advanced Industrial Science and Technology

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003157833	A2	20030530	JP 2001-353104	20011119

PRIORITY APPLN. INFO.:

JP 2001-353104

20011119

AB The claimed anode has a structure consisting of (1) a current collector, (2) a Sn plating or a Sn alloy plating formed on (1), and (3) an interface between (1) and (2) having medium Li absorptivity



between (1) and (2). The interface may contain an intermetallic compd. of Cu and Sn. The anode is manufd. by electroplating Sn or a Sn alloy on a Cu current collector and then heat treating at 80-190° under nonoxidizing atm. The resulting battery provides high capacity and long cycle life.

IT 57886-64-3

RL: DEV (Device component use); USES (Uses)  
(electroplate; anode contg. tinplated current collector  
and intermetallic compd. manufd. by heat treatment for lithium  
battery)

RN 57886-64-3 HCAPLUS

CN Tin alloy, base, Sn,Co (9CI) (CA INDEX NAME)

Component Component  
Registry Number

=====+=====

Sn	7440-31-5
Co	7440-48-4

IC ICM H01M004-02

ICS H01M004-04; H01M004-38; H01M004-66; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 11148-30-4 12610-63-8 12727-68-3 37219-43-5 39383-54-5  
51398-55-1 53805-00-8 53805-01-9 53805-02-0 57886-64-3  
61030-02-2 62766-84-1

RL: DEV (Device component use); USES (Uses)  
(electroplate; anode contg. tinplated current collector  
and intermetallic compd. manufd. by heat treatment for lithium  
battery)

L41 ANSWER 28 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:187125 HCAPLUS

DOCUMENT NUMBER: 138:356200

TITLE: Synthesis and characteristics of CoSn and Cu-Sn  
alloys as anode materials in lithium-ion cell

AUTHOR(S): Mi, Chang-Huan; Zhang, Xiao-Gang; Cao, Gao-Shao

CORPORATE SOURCE: Institute of Applied Chemistry, Xinjiang  
University, Urumqi, 830046, Peop. Rep. China

SOURCE: Wuji Huaxue Xuebao (2003), 19(3),  
283-286

CODEN: WHUXEO; ISSN: 1001-4861

PUBLISHER: Wuji Huaxue Xuebao Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB CoSn alloy and Cu-Sn samples were synthesized by H<sub>2</sub>-redn. following solid-state reaction between Co(II), Cu(II), Sn(IV) and NaOH at ambient temp. The samples were characterized by XRD and SEM. The results showed that CoSn alloy (80-200 nm) is a globular-shaped, ultrafine hexagonal material, and Cu-Sn alloy powder consists of two phases, i.e. Cu<sub>6</sub>Sn<sub>5</sub> and Cu<sub>3</sub>Sn. Cu-Sn powder has spherical morphol. and the particle size is estd. to be 60-70 nm. The electrochem. performances of CoSn alloy and Cu-Sn powder were studied using lithium-ion model cell Li/LiPF<sub>6</sub>(EC + DMC)/CoSn (or Cu-Sn). It was demonstrated the reversible discharge capacities for 10 cycles keep above 280 mAh·g<sup>-1</sup> for nanophase Cu-Sn, and 60 mAh·g<sup>-1</sup> for CoSn alloy. Differential capacity plots showed that the reaction mechanisms of Cu-Sn with lithium were reversible.

IT 12019-61-3P 12019-69-1P 12297-65-3P

12668-36-9P 39286-52-7P

RL: SPN (Synthetic preparation); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)

(battery anodes; synthesis and  
characteristics of CoSn and Cu-Sn alloys as anode  
materials in lithium-ion cell)

RN 12019-61-3 HCAPLUS

CN Copper, compd. with tin (3:1) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
Cu	3	7440-50-8
Sn	1	7440-31-5

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
Cu	6	7440-50-8
Sn	5	7440-31-5

RN 12297-65-3 HCAPLUS

CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
Co	1	7440-48-4
Sn	1	7440-31-5

RN 12668-36-9 HCAPLUS

CN Copper alloy, nonbase, Cu,Sn (9CI) (CA INDEX NAME)

Component Registry Number	Component Registry Number
=====+=====	
Cu 7440-50-8	
Sn 7440-31-5	

RN 39286-52-7 HCAPLUS

CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)

Component Registry Number	Component Registry Number
=====+=====	
Co 7440-48-4	
Sn 7440-31-5	

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

IT 12019-61-3P 12019-69-1P 12297-65-3P

12668-36-9P 39286-52-7P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(battery anodes; synthesis and characteristics of CoSn and Cu-Sn alloys as anode materials in lithium-ion cell)

L41 ANSWER 29 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:97208 HCAPLUS

DOCUMENT NUMBER: 138:156268

TITLE: Anode for secondary lithium battery and its manufacture

INVENTOR(S): Kajita, Osamu; Nishida, Motonori; Yamamoto, Koichi; Tanigawa, Ryuichi; Onishi, Toshiki; Masuoka, Sachiko; Yoshinaga, Hiroshi; Sakai, Tetsuo

PATENT ASSIGNEE(S): Fukuda Metal Foil and Powder Co., Ltd., Japan; National Institute of Advanced Industrial

SOURCE: Science and Technology  
Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003036840	A2	20030207	JP 2001-321626	20011019

PRIORITY APPLN. INFO.: JP 2001-148580 A  
20010518

AB The anode has a Sn or Sn alloy active mass on 1 or both side of a Cu collector; where Cu is compatibilizing with Sn or the Sn alloy, forming an alloy phase in the interface of the collector and the active mass. The anode is prepd. by hot dipping the Sn or Sn alloy active mass on 1 or both side of the Cu collector, and heating at 200 -600° in a nonoxidizing gas atm. to form the alloy phase in the interface of the collector and the active mass.

IT 190664-18-7  
RL: DEV (Device component use); USES (Uses)  
(structure and manuf. of anodes contg. alloy phase interface between Sn or Sn alloy active mass and Cu collectors for secondary Li batteries)

RN 190664-18-7 HCAPLUS

CN Tin alloy, base, Sn 90,Co 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	90	7440-31-5
Co	10	7440-48-4

IC ICM H01M004-02

ICS H01M004-04; H01M004-38; H01M004-66; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7440-31-5, Tin, uses 7440-50-8, Copper, uses 12664-06-1  
37316-10-2 39428-07-4 55918-93-9 58847-03-3 106187-84-2  
189357-64-0 190664-18-7 374806-33-4 495504-64-8  
495504-67-1 495504-73-9 495504-76-2 495504-83-1 495504-88-6  
495504-91-1 495504-94-4 495504-97-7

RL: DEV (Device component use); USES (Uses)  
(structure and manuf. of anodes contg. alloy phase interface between Sn or Sn alloy active mass and Cu collectors for secondary Li batteries)

L41 ANSWER 30 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:58409 HCAPLUS

DOCUMENT NUMBER: 138:124985

TITLE: secondary nonaqueous electrolyte battery

INVENTOR(S): Miyaki, Yukio

PATENT ASSIGNEE(S): Sony Corporation, Japan

SOURCE: PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003007405	A1	20030123	WO 2002-JP7011	20020710
<--				
W: CN, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
JP 2003031211	A2	20030131	JP 2001-209727	20010710
<--				
JP 3714205	B2	20051109		
EP 1406325	A1	20040407	EP 2002-745925	20020710
<--				
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
US 2004029004	A1	20040212	US 2003-385159	20030310
<--				
US 6908709	B2	20050621		
US 2005181276	A1	20050818	US 2005-77480	20050310
<--				
PRIORITY APPLN. INFO.:			JP 2001-209727	A 20010710
<--				
			WO 2002-JP7011	W 20020710
<--				
			US 2003-385159	A1 20030310
<--				
AB	A secondary Li battery uses an anode contg. a carbonaceous material, a polymer, and a Sn compd. $\text{SnMxM'yM}^{\text{z}}$ , where M = Co and/or Cu; M' = Cr, Fe, Mn, Nb, Mo, W, B, and/or P; M" = In, Ag, Zn, and/or Al; $0.1 < x \leq 2$ , $0 < y \leq 2$ , and $0 < z \leq 1$ .			
IT	489428-87-7			
	RL: DEV (Device component use); USES (Uses)			
	(compns. of tin alloys in carbonaceous anodes for secondary lithium batteries)			
RN	489428-87-7 HCAPLUS			
CN	Cobalt alloy, base, Co 55, Sn 45 (9CI) (CA INDEX NAME)			
Component	Component Percent	Component Registry Number		
=====+=====+=====				
Co	55	7440-48-4		
Sn	45	7440-31-5		
IC	ICM H01M004-38			
	ICS H01M004-58; H01M004-62; H01M004-02; H01M010-40			
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)			
IT	12787-61-0	70993-37-2	489428-73-1	489428-74-2 489428-75-3
	489428-76-4	489428-77-5	489428-78-6	489428-79-7 489428-80-0

489428-81-1 489428-82-2 489428-83-3 489428-84-4 489428-85-5

489428-86-6 489428-87-7 489428-88-8 489428-89-9

RL: DEV (Device component use); USES (Uses)

(comps. of tin alloys in carbonaceous anodes for  
secondary lithium batteries)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L41 ANSWER 31 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:40389 HCAPLUS

DOCUMENT NUMBER: 138:76185

TITLE: Anode active mass containing composite particle  
and its manufacture by sol-gel process for  
secondary nonaqueous-electrolyte battery

INVENTOR(S): Takami, Norio; Morita, Tomokazu

PATENT ASSIGNEE(S): Toshiba Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003017051	A2	20030117	JP 2001-195163	200106 27

PRIORITY APPLN. INFO.:

JP 2001-195163

200106  
27

AB The title active mass is a composite particle of (1) a carbonaceous  
phase contg. a Li-intercalating metal-contg. phase having av. size  
0.2-50 nm and (2) a graphite phase having av. size 0.005-10  $\mu$ m.  
The active mass is manufd. by following steps; prepg. an organometal  
compd.-dispersed soln. contg. an alkoxide or an acetylacetonate of a  
Li-intercalating metal; and then heating a mixt. contg. the soln.,  
an org. substance, and graphite. A battery equipped with the anode  
active mass provides long cycle life.

IT 7440-31-5P, Tin, uses

RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
(Preparation); USES (Uses)  
(sol-gel process and carbonization in manuf. of Li-intercalating  
metal-contg. carbon/graphite composite particle for  
battery anode)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-58

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 7429-90-5P, Aluminum, uses 7439-92-1P, Lead, uses 7440-21-3P,  
Silicon, uses 7440-31-5P, Tin, uses 7440-32-6P,  
Titanium, uses 7440-36-0P, Antimony, uses 7440-74-6P, Indium,  
uses

RL: DEV (Device component use); IMF (Industrial manufacture); PREP  
(Preparation); USES (Uses)

(sol-gel process and carbonization in manuf. of Li-intercalating metal-contg. carbon/graphite composite particle for battery anode)

L41 ANSWER 32 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:773820 HCAPLUS

DOCUMENT NUMBER: 137:281900

TITLE: Secondary lithium batteries using alloy anodes, preparation of same anodes by mechanical alloying, and same anodes themselves

INVENTOR(S): Aizawa, Tatsuhiko; Sato, Toshitada; Nakamoto, Takayuki; Shimamura, Harushige; Okamura, Kazuhiro

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002298836	A2	20021011	JP 2001-103123	20010402

PRIORITY APPLN. INFO.:

<-- JP 2001-103123

20010402

AB The alloy anodes are prepd. from  $\geq 2$  kinds of raw material element powders by repeating compressing and extruding in molds. The preferable alloy compns. are selected from Fe<sub>2</sub>Sn, Ti<sub>2</sub>Sn, Ti<sub>6</sub>Sn<sub>5</sub>, Cu<sub>6</sub>Sn<sub>5</sub>, Co<sub>2</sub>Sn, NiSn<sub>2</sub>, FeCuSn, NiSi<sub>2</sub>, TiSi<sub>2</sub>, TiAl, NiIn<sub>2</sub>, and Mg<sub>2</sub>Pb. The alloying method provides the desired alloys with uniform compns. in high yield.

IT 177406-56-3P, Cobalt 66.7, tin 33.3 (atomic)  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
 (prepn. of alloy anodes for secondary lithium batteries by mech. alloying raw material element powders)

RN 177406-56-3 HCAPLUS

CN Cobalt alloy, base, Co 50, Sn 50 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Co	50	7440-48-4
Sn	50	7440-31-5

IC ICM H01M004-04

ICS B22F003-02; B22F003-035; B22F005-00; C22C033-02; H01M004-02; H01M004-38; H01M010-40; C22C009-02; C22C011-02; C22C013-00; C22C014-00; C22C019-03; C22C019-07; C22C028-00; C22C038-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

IT 12739-86-5P 12787-61-0P 37352-38-8P, Silicon 66.7, titanium 33.3 (atomic) 53550-31-5P, Aluminum 50, titanium 50 (atomic) 57952-74-6P 96208-32-1P 124174-27-2P 177406-56-3P, Cobalt 66.7, tin 33.3 (atomic) 464173-67-9P 464173-68-0P 464173-69-1P 464173-70-4P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(prepn. of alloy anodes for secondary lithium  
batteries by mech. alloying raw material element powders)

L41 ANSWER 33 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2002:714384 HCAPLUS  
DOCUMENT NUMBER: 137:235243  
TITLE: Secondary light metal battery  
INVENTOR(S): Shibamoto, Goro; Fujita, Shigeru; Adachi, Momoe;  
Akashi, Hiroyuki  
PATENT ASSIGNEE(S): Sony Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002270154	A2	20020920	JP 2001-73061	200103 14

PRIORITY APPLN. INFO.: JP 2001-73061  
200103  
14

AB The battery uses an anodes, whose capacity is the total  
intercalation and deposition capacities of light metal M of its  
active mass, and a cathode active mass have particle diam. in the  
ranges 1-20, 3-35, and 6-50  $\mu\text{m}$  at 10, 50, and 90% counts on its  
integral particle size distribution pattern, and sp. surface area  
0.1-2  $\text{m}^2/\text{g}$ . The cathode active mass is preferably  $\text{Li}_x\text{MO}_4$ , M =  
transition metal and  $0.05 \leq x \leq 1.10$ ; and the anode is a  
carbonaceous material or a metal, semiconductor, or alloy capable of  
alloying or forming compd. with the light metal.

IT 7440-31-5, Tin, uses  
RL: DEV (Device component use); USES (Uses)  
(anodes in secondary lithium batteries with  
lithium transition metal oxide cathode active mass having  
controlled particle size distribution and sp. surface  
area)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-02

ICS H01M004-02; H01M004-38; H01M004-48; H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-95-4,  
Magnesium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses  
7440-31-5, Tin, uses 7440-36-0, Antimony, uses  
7440-38-2, Arsenic, uses 7440-42-8, Boron, uses 7440-43-9,  
Cadmium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium,  
uses 7440-58-6, Hafnium, uses 7440-65-5, Yttrium, uses  
7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9,  
Bismuth, uses 7440-74-6, Indium, uses

RL: DEV (Device component use); USES (Uses)  
(anodes in secondary lithium batteries with  
lithium transition metal oxide cathode active mass having  
controlled particle size distribution and sp. surface

area)

L41 ANSWER 34 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:395310 HCAPLUS  
 DOCUMENT NUMBER: 137:188163  
 TITLE: Nano-scale Cu<sub>6</sub>Sn<sub>5</sub> anodes  
 AUTHOR(S): Wolfenstine, J.; Campos, S.; Foster, D.; Read, J.; Behl, W. K.  
 CORPORATE SOURCE: Army Research Laboratory, AMSRL-SE-DC, Adelphi, MD, 20783-1197, USA  
 SOURCE: Journal of Power Sources (2002), 109(1), 230-233  
 CODEN: JPSODZ; ISSN: 0378-7753  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Nanoscale (<100 nm) Cu<sub>5</sub>Sn<sub>6</sub> powders were prepd. by a chem. method that used a NaBH<sub>4</sub> soln. to reduce the metal ions. A significant improvement in capacity retention was obtained in the nanoscale Cu<sub>6</sub>Sn<sub>5</sub> alloy, compared to the alloy having micron-sized particles. The volumetric capacity of the nanoscale Cu<sub>6</sub>Sn<sub>5</sub> alloy at 100 cycles was almost twice the theor. capacity of graphite.

IT 12019-69-1  
 RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (prepn. and characterization of nanoscale copper-tin alloy anodes for batteries)

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
Cu	6	7440-50-8
Sn	5	7440-31-5

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 56

IT 12019-69-1  
 RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (prepn. and characterization of nanoscale copper-tin alloy anodes for batteries)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 35 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:372958 HCAPLUS  
 DOCUMENT NUMBER: 137:297254  
 TITLE: Effect of heat treatment and additives on the particles and carbon fibers as anodes for lithium-ion batteries  
 AUTHOR(S): Nadeau, Gabrielle; Song, Xiang Yun; Masse, Monique; Guerfi, Abdelbast; Brisard, Gessie; Kinoshita, Kimio; Zaghbi, Karim  
 CORPORATE SOURCE: Montee Ste-Julie, Lionel-Boulet, Service Chimie des Matériaux, Institut de Recherche d'Hydro-Quebec, Varennes, QC, J3X 1S1, Can.  
 SOURCE: Journal of Power Sources (2002), 108(1-2), 86-96  
 CODEN: JPSODZ; ISSN: 0378-7753  
 PUBLISHER: Elsevier Science B.V.



DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Carbon fiber (CF) and meso-carbon microbead (MCMB) precursors were heat treated at 700-2800 °C, and the electrochem. and phys. properties of the carbons were investigated. These carbons are quite different from natural graphite, which has a well-ordered layer planes where intercalation occur and two distinct surface sites, i.e. basal and edge plane sites. In the case of the fibers, intercalation occur by a single plane (circular area) or by two planes, the circular area and the cylindrical edge. For MCMB, because of its sphere-like structure, this type of carbon is able to intercalate lithium ions more uniformly (i.e. 360°). The effect of additives (B, Ag and Sn) in the two carbon samples (CF and MCMB) on the electrochem. performance was also investigated.

IT 7440-31-5, Tin, uses

RL: CPS (Chemical process); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(effect of heat-treatment and additives on the particles and carbon fibers as anodes for lithium-ion batteries)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-42-8, Boron, uses

RL: CPS (Chemical process); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(effect of heat-treatment and additives on the particles and carbon fibers as anodes for lithium-ion batteries)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 36 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:313439 HCAPLUS

DOCUMENT NUMBER: 136:328177

TITLE: Lithium battery anode materials and their manufacture

INVENTOR(S): Wada, Hitoshi; Yoshinaga, Hiroshi; Sakai, Tetsuo; Xia, Yongyao; Fujieda, Takuya

PATENT ASSIGNEE(S): Fukuda Metal Foil and Powder Co., Ltd., Japan; Sangyo Gijutsu Sogo Kenkyusho

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002124254	A2	20020426	JP 2000-317002	20001017

PRIORITY APPLN. INFO.:

JP 2000-317002

200010

17

&lt;--

AB The materials are manufd. by mech. alloying mixts. contg. primary substances which easily form compds. with Li and secondary substances which hardly form compds. with Li and then heating the resulting flaky composite particles in a nonoxidizing atm. The primary substances may be Sn, Si, Al, Ag, and/or their compds. The secondary substances may be Cu, Ni, Co, and/or their compds. The materials have good cycle performance as same as conventional C materials and higher discharge capacity than the C materials.

IT 55918-93-9 62186-40-7 105914-71-4

RL: DEV (Device component use); USES (Uses)  
(mech. alloyed flaky composite anode materials and their manuf. for Li battery)

RN 55918-93-9 HCAPLUS

CN Tin alloy, base, Sn 60,Cu 40 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	60	7440-31-5
Cu	40	7440-50-8

RN 62186-40-7 HCAPLUS

CN Copper alloy, base, Cu 50,Sn 50 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Cu	50	7440-50-8
Sn	50	7440-31-5

RN 105914-71-4 HCAPLUS

CN Tin alloy, base, Sn 67,Cu 33 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	67	7440-31-5
Cu	33	7440-50-8

IC ICM H01M004-38

ICS B22F001-00; C22C001-04; C22C013-00; H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 56

IT 55918-93-9 62186-40-7 105914-71-4

RL: DEV (Device component use); USES (Uses)  
(mech. alloyed flaky composite anode materials and their manuf. for Li battery)

L41 ANSWER 37 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:241160 HCAPLUS

DOCUMENT NUMBER: 136:265820

TITLE: Secondary lithium battery anode and the battery  
INVENTOR(S): Tamura, Noriyuki; Nakamizo, Shiori; Jito, Daizo;  
Ohshita, Ryuji; Fujimoto, Masahisa; Fujitani,  
Shin; Kamino, Maruo

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002025757	A1	20020328	WO 2001-JP8129	20010919
<p>W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM</p> <p>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG</p>				
JP 2002373647	A2	20021226	JP 2001-282739	20010918
AU 2001090238	A5	20020402	AU 2001-90238	20010919
CA 2421498	AA	20030305	CA 2001-2421498	20010919
US 2003180619	A1	20030925	US 2003-380801	20030319
<p>PRIORITY APPLN. INFO.:</p> <p>JP 2000-285343 A 20000920</p> <p>JP 2001-113069 A 20010411</p> <p>WO 2001-JP8129 W 20010919</p>				
<p>AB The anode has a thin alloy film of a Li alloying metal and a non-alloying metal on a collector. The alloy film may have cuts in the thickness direction after an initial charge-discharge cycle, the collector may have roughness Ra 0.01-2 µm, and the Li alloying meta, is preferably Sn and the non-alloy metal is selected from Fe, Co, and Ni.</p> <p>IT 39286-52-7 405234-59-5</p> <p>RL: DEV (Device component use); USES (Uses) (alloys and intermetallic compds. of lithium alloying metals and non-alloying metals for secondary lithium battery anodes)</p> <p>RN 39286-52-7 HCAPLUS</p> <p>CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)</p>				
<p>Component Component Registry Number</p> <p>====+=====</p> <p>Co 7440-48-4</p> <p>Sn 7440-31-5</p>				

RN 405234-59-5 HCAPLUS  
 CN Tin alloy, base, Sn 83,Co 17 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	83	7440-31-5
Co	17	7440-48-4

IC ICM H01M004-02  
 ICS H01M004-38; H01M010-40; H01M004-66  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 12739-90-1 39286-52-7 405234-59-5 405234-60-8  
 405234-61-9 405234-62-0  
 RL: DEV (Device component use); USES (Uses)  
 (alloys and intermetallic compds. of lithium alloying metals and non-alloying metals for secondary lithium battery anodes)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 38 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:238073 HCAPLUS  
 DOCUMENT NUMBER: 136:265793  
 TITLE: Manufacture of anode active mass for secondary nonaqueous electrolyte battery  
 INVENTOR(S): Nakamoto, Takayuki; Sato, Toshitada; Shimamura, Harushige; Okamura, Kazuhiro  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002093412	A2	20020329	JP 2000-276915	20000912

PRIORITY APPLN. INFO.: JP 2000-276915 20000912

AB The anode is prepd. by filling a raw material, contg.  $\geq 1$  Group 2-11 metal and  $\geq 1$  Group 13-15 element, in a mold having a bent through hole bending  $\leq 180^\circ$ , and pushing the material through the hole by a rod while applying a shearing force to the mixt.

IT 55071-50-6P  
 RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
 (manuf. of anode active mass by applying shearing force on raw material for secondary lithium batteries)

RN 55071-50-6 HCAPLUS  
 CN Cobalt, compd. with tin (2:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	2	7440-48-4

Sn | 1 | 7440-31-5

IC ICM H01M004-38  
ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 12003-96-2P, AlTi 12032-53-0P 12039-83-7P, Titanium silicide (TiSi<sub>2</sub>) 12054-11-4P, CuSn 12201-89-7P, Nickel silicide (NiSi<sub>2</sub>) 12509-20-5P 12510-35-9P, SnTi<sub>2</sub> 12763-92-7P 55071-50-6P 210885-32-8P 264124-74-5P 405234-66-4P  
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)  
(manuf. of anode active mass by applying shearing force on raw material for secondary lithium batteries)

L41 ANSWER 39 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:10860 HCAPLUS

DOCUMENT NUMBER: 136:72296

TITLE: Production of cathodes and anodes for batteries and fuel cells, metalized material for the electrodes, and production of the metalized material

INVENTOR(S): Kollmann, Wolfgang; Kollmann, Helga

PATENT ASSIGNEE(S): Austria

SOURCE: PCT Int. Appl., 44 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002001656	A2	20020103	WO 2001-EP7467	20010629
<--				
WO 2002001656	A3	20020808		
WO 2002001656	C2	20030515		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1299916	A2	20030409	EP 2001-949450	20010629
<--				
EP 1299916	B1	20040707		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
AT 270791	E	20040715	AT 2001-949450	20010629
<--				
ES 2225574	T3	20050316	ES 2001-1949450	20010629
<--				

US 2004013812 A1 20040122 US 2003-312618

200308  
04

PRIORITY APPLN. INFO.:

<--  
DE 2000-10031633 A200006  
29<--  
WO 2001-EP7467 W200106  
29

AB The invention relates to prodn. of composite cathodes and anodes for Li batteries, and the cathodes and anodes thereby produced. The active mass in the form of a thin film is incorporated into a material, or the active mass together with a matrix metal or a matrix alloy is deposited on a substrate. The invention also relates to a metalized, textile material made of insulating fibers which were made conductive and which were completely electroplated or electroless coated. The fibers lying on crossovers are not baked with other fibers, but can move freely. The surface of the material is thereby optimally used. Preferably, the material is used as an anode or a cathode for batteries, esp. a lithium battery, and fuel cells. During the electroplating or electroless coating stage in the prodn. of the material, the fibers in the material move relatively to each other to avoid baking. A device for the prodn. process comprises 1st rollers with an elliptical cross section and 2nd rollers with a diagonal circumferential profile, which extend or move the material passing over, and conveyed thereby, in the longitudinal and lateral direction.

IT 39286-52-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(in prodn. of cathodes and anodes for batteries  
and fuel cells)

RN 39286-52-7 HCAPLUS

CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)

Component Component  
Registry Number

=====+

Co 7440-48-4  
Sn 7440-31-5

IC ICM H01M004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

Section cross-reference(s): 38, 56, 72

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-05-3,  
Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium,  
uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses  
7440-32-6, Titanium, uses 7440-44-0, Carbon, uses 7440-48-4,  
Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses  
11110-83-1 11149-64-7 12031-65-1, Lithium nickel oxide (LiNiO2)  
12057-17-9, Lithium manganese oxide (LiMn2O4) 12190-79-3, Cobalt  
lithium oxide (LiCoO2) 12649-48-8 12683-37-3 12783-98-1  
12797-00-1, Cobalt, nickel, phosphorus 39286-52-7  
55326-82-4, Lithium titanium sulfide (LiTiS2) 55964-31-3, Lithium  
vanadium selenide (LiVSe2) 87398-22-9

RL: TEM (Technical or engineered material use); USES (Uses)  
(in prodn. of cathodes and anodes for batteries  
and fuel cells)

L41 ANSWER 40 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:865033 HCAPLUS

DOCUMENT NUMBER: 136:9042

TITLE: Manufacture of anode active mass for secondary

INVENTOR(S): lithium battery, the anode, the battery, and  
manufacture of the anode and the battery  
Yamamoto, Tomoya; Umeyama, Hiroya; Kawakami,  
Soichiro  
PATENT ASSIGNEE(S): Canon Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001332254	A2	20011130	JP 2001-68918	20010312
CN 1333576	A	20020130	CN 2001-125938	20010313
US 2002015889	A1	20020207	US 2001-804191	20010313
US 6835332 TW 521451	B2 B	20041228 20030221	TW 2001-90105866	20010313
US 2005079414	A1	20050414	US 2004-919295	20040817
US 2005142446	A1	20050630	US 2004-919294	20040817
PRIORITY APPLN. INFO.:			JP 2000-69100	A 20000313
			US 2001-804191	A3 20010313
AB	The anode active mass is manufd. by prepg. a soln. contg. $\geq 1$ Li alloying metal salts or complexes, $\geq 1$ transition metal salts or complexes, and a complexing agent; mixing the soln. with a reducing agent; and pptg. amorphous Li alloying metal by reducing the metal and transition metal ions, while oxidizing the reducing agent;. The anode has the above active mass on a Li non-alloying collector, and is prepd. by applying the active mass on the collector, e.g., by pressing.			
IT	94240-46-7P RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses) (manuf. of amorphous lithium alloying anode active mass from metal salt and complexes for secondary lithium batteries)			
RN	94240-46-7 HCAPLUS			
CN	Tin alloy, base, Sn 86, Co 14 (9CI) (CA INDEX NAME)			

Component    Component    Component

	Percent	Registry Number
Sn	86	7440-31-5
Co	14	7440-48-4

IC ICM H01M004-40  
ICS B22F005-00; H01M004-02; H01M004-04; H01M010-40; C22C024-00  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
IT 94240-46-7P 128943-10-2P  
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)  
(manuf. of amorphous lithium alloying anode active mass from metal salt and complexes for secondary lithium batteries)

L41 ANSWER 41 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:796591 HCAPLUS

DOCUMENT NUMBER: 135:346872

TITLE: Anode active mass for secondary nonaqueous electrolyte batteries and its manufacture

INVENTOR(S): Takeshita, Yukiteru; Kamishiro, Koichi; Negi, Noriyuki; Uenaka, Hideya; Kohiyori, Motoji; Nitta, Yoshiaki; Shimamura, Harushige; Okamura, Kazuhiro

PATENT ASSIGNEE(S): Sumitomo Metal Industries, Ltd., Japan; Matsushita Electric Industrial Co., Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001307723	A2	20011102	JP 2000-118648	20000419

PRIORITY APPLN. INFO.:

<--  
JP 2000-118648

20000419

AB The anode active mass contains an alloy having a 1st group of phases of elements, capable of reversibly bonding with Li, and a 2nd group of phases contg.  $\geq 1$  element in the 1st group and  $\geq 1$  Group IIA, IIIA, IVA and transition metals, and contains Li added before the solidification of the alloy. The active mass is prepd. by adding a Li source to a melt of the alloy components and solidifying the alloy.

IT 190664-12-1

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(structure and manuf. of multiphase lithium alloying anode active mass for secondary lithium batteries)

RN 190664-12-1 HCAPLUS

CN Tin alloy, base, Sn 87, Co 13 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	87	7440-31-5
Co	13	7440-48-4



IT 12394-61-5  
 RL: MSC (Miscellaneous)  
 (structure and manuf. of multiphase lithium alloying  
 anode active mass for secondary lithium batteries  
 )  
 RN 12394-61-5 HCAPLUS  
 CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	2	7440-31-5

IC ICM H01M004-38  
 ICS C22C001-02; C22C030-00; H01M004-02; H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)  
 IT 81572-78-3 139530-68-0 165723-76-2 190664-12-1  
 259750-77-1 264609-25-8 371921-00-5 371921-01-6 371921-02-7  
 371921-03-8 371921-04-9 371921-05-0 371921-06-1 371921-07-2  
 371921-08-3 371921-09-4 371921-10-7 371921-11-8 371921-12-9  
 371921-13-0  
 RL: DEV (Device component use); PEP (Physical, engineering or  
 chemical process); PROC (Process); USES (Uses)  
 (structure and manuf. of multiphase lithium alloying  
 anode active mass for secondary lithium batteries  
 )  
 IT 7440-21-3, Silicon, miscellaneous 11099-22-2 11148-21-3  
 12017-12-8, Cobalt silicide (CoSi<sub>2</sub>) 12022-99-0, Iron silicide  
 (FeSi<sub>2</sub>) 12035-57-3, NiSi 12039-83-7, Titanium silicide (TiSi<sub>2</sub>)  
 12039-87-1, Vanadium silicide (VSi<sub>2</sub>) 12039-88-2, Tungsten silicide  
 (WSi<sub>2</sub>) 12137-04-1, Neodymium silicide (NdSi<sub>2</sub>) 12201-89-7, Nickel  
 silicide (NiSi<sub>2</sub>) 12394-61-5 53095-77-5, Magnesium  
 silicide (MgSi<sub>2</sub>) 71818-44-5 125694-24-8  
 RL: MSC (Miscellaneous)  
 (structure and manuf. of multiphase lithium alloying  
 anode active mass for secondary lithium batteries  
 )

L41 ANSWER 42 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:780558 HCAPLUS  
 DOCUMENT NUMBER: 135:346844  
 TITLE: Anode active mass for secondary nonaqueous  
 batteries and its manufacture  
 INVENTOR(S): Takeshita, Yukiteru; Negi, Noriyuki; Yamamoto,  
 Hiroyoshi; Kohiyori, Motoji; Yonemura, Koji;  
 Nitta, Yoshiaki; Shimamura, Harushige  
 PATENT ASSIGNEE(S): Sumitomo Metal Industries, Ltd., Japan;  
 Matsushita Electric Industrial Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001297757	A2	20011026	JP 2000-113912	200004 14

PRIORITY APPLN. INFO.: JP 2000-113912

200004

14

&lt;--

AB The anode active mass has a 1st part contg.  $\geq 1$  Li intercalating metal (M) phase, and a 2nd part contg.  $\geq 1$  phases of intermetallic compds. or solid solns. of M with  $>1$  non-M elements selected from Group 2, transition metal, and Group 13-15 elements or the non-M element alone; where a portion of the 2nd part has a granular and/or an acicular structure, and a portion of the 2nd part is surrounded by a layered structure of the 2 parts or by the 1st part or the 1st part in a fine granular structure. The anode active mass is prep'd. by a rapidly solidifying melted compn. at  $\geq 100^\circ/\text{s}$ .

IT 12394-61-5P 370598-45-1P 370598-46-2P

RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)  
(compns. and structure and manuf. of multiphase anode active mass for secondary lithium batteries)

RN 12394-61-5 HCAPLUS

CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	2	7440-31-5

RN 370598-45-1 HCAPLUS

CN Cobalt, compd. with tin (0.14:0.86) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	0.14	7440-48-4
Sn	0.86	7440-31-5

RN 370598-46-2 HCAPLUS

CN Cobalt, compd. with tin (0.18:0.82) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	0.18	7440-48-4
Sn	0.82	7440-31-5

IC ICM H01M004-38

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7429-90-5P, Aluminum, uses 7440-31-5P, Tin, uses 7440-41-7P, Beryllium, uses 12137-64-3P, Silicon phosphide (SiP)  
12394-61-5P 106698-75-3P, Aluminum silicide  
145998-02-3P, Germanium silicide (GeSi) 158616-16-1P, Tin silicide (SnSi<sub>2</sub>) 370598-45-1P 370598-46-2P  
370598-47-3P, Cobalt iron silicide (Co<sub>0.41</sub>Fe<sub>0.02</sub>Si<sub>0.57</sub>)  
370598-48-4P, Titanium zinc silicide (Ti<sub>0.4</sub>Zn<sub>0.01</sub>Si<sub>0.59</sub>)  
370598-49-5P, Beryllium silicide (Be<sub>0.87</sub>Si<sub>0.13</sub>)  
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)  
(compns. and structure and manuf. of multiphase anode active mass for secondary lithium batteries)

L41 ANSWER 43 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:763375 HCAPLUS

DOCUMENT NUMBER: 135:320488

TITLE: Secondary nonaqueous electrolyte batteries

INVENTOR(S): Nitta, Yoshiaki; Bito, Yasuhiko; Sato, Toshitada; Okamura, Kazuhiro; Shimamura, Harunari  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 34 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001078167	A1	20011018	WO 2001-JP2842	20010330
<--				
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2001291512	A2	20011019	JP 2000-103039	20000405
<--				
EP 1274140	A1	20030108	EP 2001-917771	20010330
<--				
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
US 2003039891	A1	20030227	US 2002-129240	20020501
<--				
PRIORITY APPLN. INFO.:			JP 2000-103039	A 20000405
<--				
			WO 2001-JP2842	W 20010330

AB The batteries have a nonaq. electrolyte soln., separators, Li intercalating cathodes, and Li intercalating anodes; where the anode active mass particles have a core of a 1st solid phase contg. Si, Sn, and/or Zn, a shell of a 2nd solid phase of a solid soln. or an intermetallic compd. of the 1st phase component and  $\geq 1$  of Si, Sn, Zn, and Group 2-14 elements other than C, with the 1st and/or 2nd phase being amorphous.

IT 12019-69-1

RL: DEV (Device component use); USES (Uses)  
 (anode active mass particles with intermetallic compd. or solid soln. shells for secondary lithium batteries)

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	6	7440-50-8
Sn	5	7440-31-5

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)

(tin particles with intermetallic compd. or solid soln.  
shells for secondary lithium battery anodes)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-38

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT Battery anodes

(anode active mass particles with intermetallic compd.  
or solid soln. shells for secondary lithium batteries)

IT 1313-08-2 11099-22-2 11109-57-2 11110-87-5 11124-13-3  
11125-88-5 11143-56-9 11149-84-1 12017-12-8, Cobalt silicide  
(CoSi<sub>2</sub>) 12019-69-1 12023-01-7 12039-83-7, Titanium  
silicide (TiSi<sub>2</sub>) 12057-70-4 12166-63-1 12201-89-7, Nickel  
silicide (NiSi<sub>2</sub>) 12211-23-3 22831-39-6, Magnesium silicide  
(Mg<sub>2</sub>Si) 37230-21-0 71818-44-5 74946-92-2 141850-96-6  
144692-49-9

RL: DEV (Device component use); USES (Uses)

(anode active mass particles with  
intermetallic compd. or solid soln. shells for secondary lithium  
batteries)

IT 7440-21-3, Silicon, uses

RL: DEV (Device component use); USES (Uses)

(silicon particles with intermetallic compd. or solid  
soln. shells for secondary lithium battery anodes)

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)

(tin particles with intermetallic compd. or solid soln.  
shells for secondary lithium battery anodes)

IT 7440-66-6, Zinc, uses

RL: DEV (Device component use); USES (Uses)

(zinc particles with intermetallic compd. or solid  
soln. shells for secondary lithium battery anodes)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L41 ANSWER 44 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:692222 HCAPLUS

DOCUMENT NUMBER: 135:245002

TITLE: Copper-based anode material for nonaqueous  
electrolyte secondary battery by electroplating

INVENTOR(S): Ohara, Shuji; Ishida, Shintaro

PATENT ASSIGNEE(S): Mitsui Mining and Smelting Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001256968	A2	20010921	JP 2000-69421	200003 13

PRIORITY APPLN. INFO.:

JP 2000-69421

200003

13

&lt;--

AB The anode material comprises a Cu foil electroplated with alloys. The anode material is manufd. by electroplating of a Cu foil, followed by heating to form intermetallic compds. The anode material gives batteries with high capacity and high-rate performance.

IT 39286-52-7P 88872-71-3P  
 RL: DEV (Device component use); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (manuf. of copper-based anode material for nonaq. electrolyte secondary battery by electroplating)

RN 39286-52-7 HCAPLUS

CN Cobalt alloy, nonbase, Co,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Sn	7440-31-5

RN 88872-71-3 HCAPLUS

CN Tin alloy, base, Sn 70,Co 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	70	7440-31-5
Co	30	7440-48-4

IT 12297-65-3 12394-61-5  
 RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
 (manuf. of copper-based anode material for nonaq. electrolyte secondary battery by electroplating)

RN 12297-65-3 HCAPLUS

CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	1	7440-31-5

RN 12394-61-5 HCAPLUS

CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	2	7440-31-5

IC ICM H01M004-02  
 ICS C25D005-50; C25D007-06; H01M004-38; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 56

IT 7440-02-0P, Nickel, uses 7440-31-5P, Tin, uses 7440-36-0P, Antimony, uses 7440-66-6P, Zinc, uses 11110-83-1P 11143-56-9P 11146-70-6P 12202-01-6P 12797-46-5P 39286-52-7P 39460-45-2P 50941-27-0P 51636-79-4P 54342-36-8P 77885-23-5P 88872-71-3P 361144-76-5P 361144-77-6P  
 RL: DEV (Device component use); PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manuf. of copper-based anode material for nonaq.  
electrolyte secondary battery by electroplating)  
IT 12297-65-3 12394-61-5  
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
(manuf. of copper-based anode material for nonaq.  
electrolyte secondary battery by electroplating)

L41 ANSWER 45 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:691889 HCAPLUS  
DOCUMENT NUMBER: 135:229387  
TITLE: Battery with nonaqueous electrolyte and improved  
anode active material  
INVENTOR(S): Inagaki, Hiroki; Takami, Norio  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan  
SOURCE: Eur. Pat. Appl., 12 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1134824	A2	20010919	EP 2001-302081	20010307
EP 1134824	A3	20031029		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2001046629	A1	20011129	US 2001-797883	20010305
US 6686090	B2	20040203		
JP 2001332253	A2	20011130	JP 2001-72061	20010314
JP 3648458	B2	20050518		
CN 1313645	A	20010919	CN 2001-111478	20010315
PRIORITY APPLN. INFO.:			JP 2000-72377	A 20000315

AB The development of a new anode material led to the provision of a battery with nonaq. electrolyte which has a combination of a high discharge capacity with excellent cycling characteristics. The battery with nonaq. electrolyte comprises: a cathode and an anode having an anode active material capable of occluding and releasing an alkali metal. The anode active material contains  $\geq 1$  element selected from the group consisting of Group 4B elements and Group 5B elements and has  $\geq 1$  crystal structure selected from the group consisting of BiF<sub>3</sub> structure, Cu<sub>2</sub>MnAl structure, and AgAsMg structure. The anode active material contains  $\geq 1$  element selected from the group consisting of Al, Si, Ge, Sn, P, Sb, and Bi and has  $\geq 1$  crystal structure selected from the group consisting of BiF<sub>3</sub> structure, Cu<sub>2</sub>MnAl structure, and AgAsMg structure.

IT 75349-09-6  
RL: DEV (Device component use); USES (Uses)  
(battery with nonaq. electrolyte and improved

anode active material)

RN 75349-09-6 HCAPLUS

CN Cobalt, compd. with tin (3:1) (7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	3	7440-48-4
Sn	1	7440-31-5

IC ICM H01M004-38

ICS H01M004-46; H01M004-48; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate  
 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-31-5,  
 Tin, uses 7440-36-0, Antimony, uses 7440-56-4, Germanium, uses  
 7440-69-9, Bismuth, uses 7723-14-0, Phosphorus, uses 11056-42-1  
 11118-07-3 12003-42-8 12023-54-0, Iron silicide (Fe<sub>3</sub>Si)  
 12032-71-2 12059-23-3 12133-96-9 12163-59-6, Manganese  
 silicide (Mn<sub>3</sub>Si) 12190-79-3, Cobalt lithium oxide colio2  
 12423-44-8 12502-69-1 12526-54-4 12526-55-5 12534-03-1  
 21324-40-3, Lithium hexafluorophosphate 60968-66-3 66590-17-8  
 75349-09-6 99787-36-7 105110-44-9 149571-46-0  
 149571-49-3 359783-12-3 359783-13-4 359783-14-5 359783-15-6  
 359783-16-7 359783-17-8, Antimony manganese nickel phosphide  
 (Sb<sub>0.8</sub>MnNi<sub>2</sub>P<sub>0.2</sub>) 359783-18-9, Antimony cobalt manganese phosphide  
 (Sb<sub>0.8</sub>Co<sub>2</sub>Mn<sub>2</sub>P<sub>0.2</sub>) 359783-19-0 359783-20-3 359783-21-4, Nickel  
 tin titanium silicide (NiSn<sub>0.8</sub>TiSi<sub>0.2</sub>) 359783-22-5, Cobalt tin  
 titanium silicide (CoSn<sub>0.8</sub>TiSi<sub>0.2</sub>) 359783-23-6 359783-24-7  
 359783-25-8 359783-26-9

RL: DEV (Device component use); USES (Uses)

(battery with nonaq. electrolyte and improved  
anode active material)

L41 ANSWER 46 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:677124 HCAPLUS

DOCUMENT NUMBER: 135:213522

TITLE: Secondary nonaqueous electrolyte batteries

INVENTOR(S): Kasamatsu, Shinji; Shimamura, Harunari; Nitta, Yoshiaki

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001067528	A1	20010913	WO 2001-JP1747	20010306
<--				
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2001325958	A2	20011122	JP 2001-58323	20010302
<--				
US 2003096168	A1	20030522	US 2002-220885	200209

05  
 <--  
 US 6911282 B2 20050628 JP 2000-61483 A 200003  
 PRIORITY APPLN. INFO.: 07  
 <--  
 JP 2001-58323 A 200103  
 02  
 <--  
 WO 2001-JP1747 W 200103  
 06

<--  
 AB The batteries use anodes contg. graphite conductive particles, having median diam. Dc, and Li intercalating particles, having median diam. Da; where the Li intercalating particles have a Si and/or Sn core particle, coated with a solid soln. or intermetallic compd. layer contg. the core component and  $\geq 1$  Group 2-14 element other than Si, Sn and C, and have Dc/Da = 0.02-0.5. Preferably, the coating is Ti<sub>2</sub>Si and Ti<sub>2</sub>Sn for Si and Sn cores, resp.  
 IT 7440-31-5, Tin, uses  
 RL: DEV (Device component use); USES (Uses)  
 (anodes from lithium intercalating particles with solid soln. or intermetallic compd. coatings for secondary lithium batteries)  
 RN 7440-31-5 HCAPLUS  
 CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-38  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 1313-08-2 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 12039-83-7, Titanium silicide (TiSi<sub>2</sub>) 12201-89-7, Nickel silicide (NiSi<sub>2</sub>) 12510-35-9 77137-25-8, Titanium silicide (Ti<sub>2</sub>Si)  
 RL: DEV (Device component use); USES (Uses)  
 (anodes from lithium intercalating particles with solid soln. or intermetallic compd. coatings for secondary lithium batteries)  
 REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 47 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:655021 HCAPLUS  
 DOCUMENT NUMBER: 135:229341  
 TITLE: Nonaqueous electrolyte secondary batteries with excellent cycle characteristics and high discharge capacity  
 INVENTOR(S): Nakamoto, Takayuki; Nitta, Yoshiaki; Shimamura, Harushige; Negi, Noriyuki; Yamamoto, Hiroyoshi; Takeshita, Yukiteru; Yonemura, Koji  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan; Sumitomo Metal Industries, Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:



PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001243946	A2	20010907	JP 2000-53317	20000229

PRIORITY APPLN. INFO.: JP 2000-53317 20000229

AB The anodes of the batteries include composite particles consisting of (A) a core particle having solid phase A which contains Si, Sn, and/or Zn and (B) a (partial) coating having solid phase B which is a solid soln. or intermetallic compd. of Si, Sn, and/or Zn with  $\geq 1$  of Group 2, 12, 13, 14 elements and transition metals (excluding A-forming elements and C), and the composite particles also contain ceramics. The ceramics may be selected from SiC, Si<sub>3</sub>N<sub>4</sub>, Al<sub>2</sub>O<sub>3</sub>, TiC, TiB<sub>2</sub>, Y<sub>2</sub>O<sub>3</sub>, ZrB<sub>2</sub>, HfB<sub>2</sub>, ZrO<sub>2</sub>, ZnO, WC, and/or W<sub>2</sub>C. The batteries are suitable for use in mobile phones, personal digital assistances, etc.

IT 7440-31-5, Tin, uses  
 RL: DEV (Device component use); USES (Uses)  
 (core; solid soln. or intermetallic compd. composite particles contg. ceramics as nonaq. electrolyte secondary battery anodes)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-38  
 ICS H01M004-02; H01M004-42; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 57

IT 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 7440-66-6, Zinc, uses  
 RL: DEV (Device component use); USES (Uses)  
 (core; solid soln. or intermetallic compd. composite particles contg. ceramics as nonaq. electrolyte secondary battery anodes)

L41 ANSWER 48 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:377216 HCAPLUS

DOCUMENT NUMBER: 134:369430

TITLE: Secondary nonaqueous electrolyte batteries

INVENTOR(S): Kajiura, Hisashi; Yamaura, Kiyoshi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001143761	A2	20010525	JP 1999-325938	19991116

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PRIORITY APPLN. INFO.:

JP 1999-325938

199911

16

&lt;--

AB The batteries use Li intercalating cathodes and anodes, where the anode active mass contains a Li alloying metal Sn and a Li non-alloying metal Co.

IT 12297-65-3 12394-61-5

RL: DEV (Device component use); USES (Uses)  
(lithium intercalating cobalt tin compds. for anodes in secondary lithium batteries)

RN 12297-65-3 HCAPLUS

CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Co	1	7440-48-4
Sn	1	7440-31-5

RN 12394-61-5 HCAPLUS

CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Co	1	7440-48-4
Sn	2	7440-31-5

IC ICM H01M010-40

ICS C22C013-00; H01M004-02; H01M004-38

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7439-93-2, Lithium, uses 12297-65-3 12394-61-5

RL: DEV (Device component use); USES (Uses)  
(lithium intercalating cobalt tin compds. for anodes in secondary lithium batteries)

L41 ANSWER 49 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:361791 HCAPLUS

DOCUMENT NUMBER: 135:109649

TITLE: Flake Cu-Sn alloys as negative electrode materials for rechargeable lithium batteries

AUTHOR(S): Xia, Yongyao; Sakai, Tetsuo; Fujieda, Takuya; Wada, Masashi; Yoshinaga, Hiroshi

CORPORATE SOURCE: Battery Section, Osaka National Research Institute, Osaka, 563-8577, Japan

SOURCE: Journal of the Electrochemical Society (2001), 148(5), A471-A481

CODEN: JESOAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have prepd. the intermetallic compd. Cu<sub>6</sub>Sn<sub>5</sub> using mech.-alloying, gas-atomizing, and melt-spinning techniques. The electrochem. performance of the compd. is critically dependent on its morphol. due to different prepn. methods. The Cu<sub>6</sub>Sn<sub>5</sub> alloy created by mech. alloying, consisting of <1 μm thick flake powder, has the best battery performance of all compds. It delivers a rechargeable capacity of 200 mAh/g (2000 Ah/L) over 50 cycles when the cycled voltage range is restricted to 0.2-1.5 V. The effect of the mech.-alloying time and Cu/Sn ratio on its battery performance was further investigated. The presence of excess Cu in alloy, relative to Cu<sub>6</sub>Sn<sub>5</sub>, showed improved cyclability at the expense of capacity, whereas an excess of Sn resulted in poor cyclability. A lithium-ion cell based on a flaked Cu-Sn microcomposite alloy neg. electrode and

a 5 V LiNi<sub>x</sub>Mn<sub>2-x</sub>O<sub>4</sub> pos. electrode was assembled. The cell showed an av. working voltage at 4.0 V and cycled well with a reversible capacity of ca. 200 mAh/g based on the pure Cu-Sn alloy when a cell was cycled between 3.5 and 4.6 V.

IT 12682-92-7

RL: DEV (Device component use); USES (Uses)  
(flake Cu-Sn alloys as anode materials for rechargeable lithium batteries)

RN 12682-92-7 HCAPLUS

CN Copper alloy, base, Cu 70, Sn 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Cu	70	7440-50-8
Sn	30	7440-31-5

IT 12019-69-1P 12054-11-4P, CuSn 12668-36-9P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(flake Cu-Sn alloys as anode materials for rechargeable lithium batteries)

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	6	7440-50-8
Sn	5	7440-31-5

RN 12054-11-4 HCAPLUS

CN Copper, compd. with tin (1:1) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	1	7440-50-8
Sn	1	7440-31-5

RN 12668-36-9 HCAPLUS

CN Copper alloy, nonbase, Cu, Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cu	7440-50-8
Sn	7440-31-5

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 56

IT Battery anodes

Mechanical alloying

Particle size

Surface area

(flake Cu-Sn alloys as anode materials for rechargeable lithium batteries)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate

12682-92-7 21324-40-3, Lithium hexafluorophosphate

162684-16-4, Lithium manganese nickel oxide 330580-30-8, Lithium manganese nickel oxide LiMn<sub>1.55</sub>Ni<sub>0.45</sub>O<sub>4</sub>

RL: DEV (Device component use); USES (Uses)

(flake Cu-Sn alloys as anode materials for rechargeable lithium batteries)

IT 12019-69-1P 12054-11-4P, CuSn 12668-36-9P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(flake Cu-Sn alloys as anode materials for rechargeable lithium batteries)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L41 ANSWER 50 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:261437 HCAPLUS

DOCUMENT NUMBER: 134:283272

TITLE: Secondary nonaqueous electrolyte battery using  
coated alloy composite particles in anodeINVENTOR(S): Nitta, Yoshiaki; Yoshizawa, Hiroshi; Shimamura,  
Harunari

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2001102052	A2	20010413	JP 1999-281309	199910 01

PRIORITY APPLN. INFO.:

<--  
JP 1999-281309

199910  
01

AB The battery has the anode using the composite particles consisting of solid phase A as cores and solid phase B as coatings on all or partial surface of the cores, wherein the particles are coated with low-m.p. alloys contg. Ga and In, Sn, and/or Zn. The solid phase A contains Si, Sn, and/or Zn. The solid phase B contains solid solns. or intermetallic compds. of the phase A elements with Group 2, transition, 12, 13, and 14 (excluding C) elements. The low-m.p. alloy coatings prevent formation of high-resistivity coatings on the composite particles and decrease of conductive network, so that the battery has high capacity, good cycle performance, and high-rate discharge performance.

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(phase component in particles; coated alloy composite  
particles in anode for high capacity, cycle,  
and discharge performance of nonaq. battery)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-38

ICS H01M004-02; H01M010-40; B22F001-02; B22F005-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

Section cross-reference(s): 56

IT 1313-08-2 7440-21-3, Silicon, uses 7440-31-5, Tin, uses

7440-66-6, Zinc, uses 11109-57-2 11110-87-5 11124-13-3

11125-88-5 11133-86-1 11143-56-9 11149-84-1 12017-12-8,

Cobalt silicide (CoSi<sub>2</sub>) 12023-01-7 12057-70-4 12201-89-7,Nickel silicide (NiSi<sub>2</sub>) 12211-23-3 22831-39-6, Magnesium

silicide (Mg<sub>2</sub>Si) 51844-78-1 55350-61-3 74946-92-2 96755-45-2  
144692-49-9

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(phase component in **particles**; coated alloy composite  
**particles in anode** for high capacity, cycle,  
and discharge performance of nonaq. **battery**)

L41 ANSWER 51 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:167734 HCAPLUS

DOCUMENT NUMBER: 134:210504

TITLE: Anodes for nonaqueous electrolyte rechargeable  
batteries

INVENTOR(S): Nakagiri, Yasushi; Sato, Toshitada; Takezawa,  
Hideharu; Matsuda, Hiromu

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 18 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1081777	A2	20010307	EP 2000-118684	200008 29
<--				
EP 1081777	A3	20040714		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001068096	A2	20010316	JP 1999-244060	199908 30
<--				
US 6558841	B1	20030506	US 2000-649581	200008 29
<--				
CN 1291800	A	20010418	CN 2000-126985	200008 30
<--				
PRIORITY APPLN. INFO.:			JP 1999-244060	A 199908 30

AB The purpose of the present invention is to provide a neg. electrode  
for nonaq. electrolyte rechargeable batteries whose capacity is high  
and whose decrease of the discharging capacity through the cycles is  
low by improving the electron cond. of the surfaces of the active  
material particle for the neg. electrode. In order to achieve this  
purpose, an active material in the form of a composite particle  
comprising a phase that can store a lithium ion and includes at  
least Sn and a phase that cannot store a lithium ion and an  
electronically conductive material coating part of or the entire  
surfaces of the above described particle, is used for the neg.  
electrode in the present invention.

IT 12394-61-5

RL: DEV (Device component use); USES (Uses)

(**anodes** for nonaq. electrolyte rechargeable  
**batteries**)

RN 12394-61-5 HCAPLUS

CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	2	7440-31-5

IC ICM H01M004-48

ICS H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
1313-08-2 7439-95-4, Magnesium, uses 7782-42-5, Graphite, uses  
12394-61-5 12509-20-5 21324-40-3, Lithium  
hexafluorophosphateRL: DEV (Device component use); USES (Uses)  
(anodes for nonaq. electrolyte rechargeable  
batteries)

L41 ANSWER 52 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:31783 HCAPLUS

DOCUMENT NUMBER: 134:103240

TITLE: Secondary nonaqueous electrolyte batteries

INVENTOR(S): Sato, Toshitada; Takezawa, Hideharu; Bito,  
Yasuhiko; Matsuda, Hiromu; Toyoguchi, Yoshinori  
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
SOURCE: PCT Int. Appl., 22 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001003210	A1	20010111	WO 2000-JP4283	20000628

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W: CN, JP, KR, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,  
NL, PT, SE

EP 1122802	A1	20010808	EP 2000-942392	20000628
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, FI

US 6544687	B1	20030408	US 2001-786450	20010301
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PRIORITY APPLN. INFO.:	JP 1999-188133	A	19990701
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WO 2000-JP4283	W	20000628
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AB The batteries use solid solns. LixMyM' (M = Ti, Zr, Mn, Co, Ni, Cu,  
and/or Fe; M' = Si and/or Sn; x <10; 0.1 ≤ y ≤ 10) as  
anode active mass.

IT 12297-65-3 55071-50-6 75349-09-6

RL: DEV (Device component use); USES (Uses)

(metal solid solns. for **anodes** in secondary lithium  
batteries)

RN 12297-65-3 HCAPLUS

CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	1	7440-31-5

RN 55071-50-6 HCAPLUS

CN Cobalt, compd. with tin (2:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	2	7440-48-4
Sn	1	7440-31-5

RN 75349-09-6 HCAPLUS

CN Cobalt, compd. with tin (3:1) (7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	3	7440-48-4
Sn	1	7440-31-5

IC ICM H01M004-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 12017-11-7, Cobalt silicide (CoSi) 12019-61-3 12022-95-6, Iron  
silicide (FeSi) 12023-00-6 12023-01-7 12023-54-0, Iron  
silicide (Fe<sub>3</sub>Si) 12023-56-2 12032-85-8, Manganese silicide  
(MnSi) 12032-86-9, Manganese silicide (MnSi<sub>2</sub>) 12032-87-0  
12033-06-6 12035-57-3, NiSi 12039-70-2, Titanium silicide (TiSi)  
12039-71-3, Titanium silicide (Ti<sub>3</sub>Si) 12054-11-4, CuSn  
12059-11-9 12059-14-2, Nickel silicide (Ni<sub>2</sub>Si) 12059-23-3  
12134-03-1, Cobalt silicide (Co<sub>2</sub>Si) 12134-36-0, Copper silicide  
(Cu<sub>3</sub>Si) 12136-73-1, Manganese silicide (Mn<sub>2</sub>Si) 12138-26-0,  
Zirconium silicide (ZrSi) 12138-32-8 12163-59-6, Manganese  
silicide (Mn<sub>3</sub>Si) 12166-59-5, SnTi<sub>3</sub> 12201-89-7, Nickel silicide  
(NiSi<sub>2</sub>) 12211-03-9, Zirconium silicide (Zr<sub>2</sub>Si) 12297-65-3  
12339-84-3 12343-95-2, Iron silicide (Fe<sub>2</sub>Si) 12410-47-8, Cobalt  
silicide (Co<sub>3</sub>Si) 12510-35-9, SnTi<sub>2</sub> 12645-12-4, Copper silicide  
(CuSi) 12725-82-5 12763-92-7 52935-15-6 54723-87-4, Iron  
silicide (Fe<sub>5</sub>Si<sub>2</sub>) 55071-50-6 63780-97-2  
75349-09-6 77137-25-8, Titanium silicide (Ti<sub>2</sub>Si)  
162783-54-2, Copper silicide (Cu<sub>2</sub>Si) 210885-32-8 318515-48-9  
318515-49-0, Iron silicide (Fe<sub>2.3</sub>Si)

RL: DEV (Device component use); USES (Uses)

(metal solid solns. for **anodes** in secondary lithium  
batteries)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L41 ANSWER 53 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:783246 HCAPLUS

DOCUMENT NUMBER: 133:311844

TITLE: Electrode materials having carbon particles with  
nano-sized inclusions therewithin and an  
associated electrolytic and fabrication process

INVENTOR(S): Fauteux, Denis G.; Shi, Jie; Krawiec, Wlodek T.

PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan

SOURCE: U.S., 12 pp., Cont.-in-part of U.S. 5,965,297.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6143448	A	20001107	US 1999-292241	19990415
US 5965297	A	19991012	US 1997-954144	19971020
JP 2000331672	A2	20001130	JP 1999-111102	19990419
			US 1997-954144	A2 19971020
			US 1999-292241	A 19990415

## PRIORITY APPLN. INFO.:

AB An electrode for use in an electrolytic cell and an assocd. process, wherein the electrode includes a current collecting substrate, an electrode active material having at least one component including inclusions no greater than one micron within a carbon particle. The carbon particle has a di-Bu phthalate (DBP) absorption rate preferably within a range of approx. 52 mL/100 g to approx. 400 mL/100 g.

IT 7440-31-5, Tin, uses  
 RL: MOA (Modifier or additive use); NUU (Other use, unclassified);  
 USES (Uses)  
 (in manuf. of anodes from carbon particles  
 contg. mixed nano metal particles for batteries  
 )

RN 7440-31-5 HCAPLUS  
 CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-02  
 INCL 429231800  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 72

IT 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11125-88-5  
 RL: MOA (Modifier or additive use); NUU (Other use, unclassified);  
 USES (Uses)  
 (in manuf. of anodes from carbon particles  
 contg. mixed nano metal particles for batteries  
 )

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



L41 ANSWER 54 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:474460 HCAPLUS

DOCUMENT NUMBER: 133:91966

TITLE: Secondary alkaline batteries with  
hydrogen-absorbing alloy anodes containing  
manganese particlesINVENTOR(S): Hatanaka, Chizuru; Irie, Shuichiro; Hosobuchi,  
Kaoru

PATENT ASSIGNEE(S): Toshiba Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000195509	A2	20000714	JP 1998-366815	199812 24

PRIORITY APPLN. INFO.:

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JP 1998-366815199812  
24

AB The batteries are equipped with anodes contg. 100 parts H-absorbing alloy powder represented as  $\text{Ln}_1\text{-xMg}_x(\text{Ni}_1\text{-yTy})_z$  (Ln is selected from lanthanoid, Ca, Sr, Sc, Y, Ti, Zr, and/or Hf; T is selected from Li, V, Nb, Ta, Cr, Mo, Mn, Fe, Co, Al, Ga, Zn, Sn, In, Cu, Si, P, and/or B;  $0 < x < 1$ ;  $0 \leq y \leq 0.5$ ; and  $2.5 \leq z \leq 4.5$ ) and 0.1-5 parts Mn-based particles. The H-absorbing alloy does not have CaCu5-type structure and shows satn. magnetization by ferromagnetic surface component 0.1-9.0 emu/m<sup>2</sup> after immersion in 8N aq. KOH soln. at 60° for 48 h. The batteries show good short-circuit prevention, high capacity, and long cycle life.

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)

(H-absorbing alloys contg.; anodes contg.

hydrogen-absorbing alloy powder having ferromagnetic surfaces and manganese particles for batteries)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-24

ICS C22C019-00; H01M004-38; H01M004-62; H01M010-24

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

IT 7439-89-6, Iron, uses 7439-93-2, Lithium, uses 7439-98-7, Molybdenum, uses 7440-03-1, Niobium, uses 7440-20-2, Scandium, uses 7440-21-3, Silicon, uses 7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-42-8, Boron, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7723-14-0, Phosphorus, uses

RL: DEV (Device component use); USES (Uses)

(H-absorbing alloys contg.; anodes contg.

hydrogen-absorbing alloy powder having ferromagnetic surfaces and manganese particles for batteries)

L41 ANSWER 55 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:394428 HCAPLUS

DOCUMENT NUMBER: 133:46081

TITLE: Particles vs fibers as anode for lithium ion batteries: effect of heat-treatment and additives

AUTHOR(S): Nadeau, Gabrielle; Song, Xiang Yun; Masse, Monique; Guerfi, Abdelbast; Kinoshita, Kimio; Zaghib, Karim

CORPORATE SOURCE: Institut de Recherche d'Hydro-Quebec, Varennes, QC, J3X 1S1, Can.

SOURCE: Proceedings - Electrochemical Society (2000), 99-24 (Intercalation Compounds for Battery Materials), 326-343  
CODEN: PESODO; ISSN: 0161-6374

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Carbon fiber (CF) and mesocarbon microbead (MCMB) precursors were heat treated at 700 to 2800°C, and the electrochem. and phys. properties of the carbons were investigated. These carbons are quite different from natural graphite, which has a well-ordered layer planes where intercalation occur and two distinct surface sites, i.e., basal and edge plane sites. In the case of the fibers, intercalation occur by a single plane (circular area) or by two planes, the circular area and the cylindrical edge. For mesocarbon microbeads (MCMB), because of its sphere-like structure, this type of carbon is able to intercalate lithium ions more uniformly (i.e., 360°). The effect of additives (B, Ag, Sn) in the two carbon samples (CF and MCMB) on the electrochem. performance was also investigated.

IT 7440-31-5, Tin, biological studies

RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)

(anode doped with; particles vs fibers as anode for lithium ion batteries: effect of heat-treatment and additives)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 57, 72

IT 7440-22-4, Silver, biological studies 7440-31-5, Tin, biological studies 7440-42-8, Boron, biological studies  
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)

(anode doped with; particles vs fibers as anode for lithium ion batteries: effect of heat-treatment and additives)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 56 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:290702 HCAPLUS

DOCUMENT NUMBER: 132:296132

TITLE: Process for preparation of nanostructure alloy anodes for lithium batteries

INVENTOR(S): Peled, Emanuel; Ulus, Avi  
 PATENT ASSIGNEE(S): Ramot University Authority for Applied Research  
 and Industrial Development L, Israel  
 SOURCE: Eur. Pat. Appl., 17 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 997543	A1	20000503	EP 1999-120914	199910 29

<--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, SI, LT, LV, FI, RO  
 IL 126807 A1 20010826 IL 1998-126807  
 199810  
29

<--

PRIORITY APPLN. INFO.: IL 1998-126807 A  
 199810  
29

<--

AB An anode structure comprises metal alloys in the form of  
 nanoparticles, where the **particle** size is 20-500 nm, and  
 the nanoparticles are bound together. The nanoparticles are bound  
 together by being plated on a support. The alloys contain Sn and/or  
 Zn as the main component.

IT 61030-02-2  
 RL: DEV (Device component use); USES (Uses)  
 (process for prepn. of nanostructure alloy **anodes** for  
 lithium **batteries**)

RN 61030-02-2 HCAPLUS  
 CN Tin alloy, base, Sn,Cu (9CI) (CA INDEX NAME)

Component	Component Registry Number
Sn	7440-31-5
Cu	7440-50-8

IC ICM C22C001-04  
 ICS B22F001-00; H01M004-38; H01M004-02; H01M004-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 Section cross-reference(s): 56, 72  
 IT 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate  
 105-58-8 108-32-7, Propylene carbonate 109-99-9, uses 110-71-4  
 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate  
 7439-93-2D, Lithium, polyethylene oxide complex, uses 12031-65-1,  
 Lithium nickel oxide linio2 12057-17-9, Lithium manganese oxide  
 limn2o4 12190-79-3, Cobalt lithium oxide colio2 12621-65-7  
 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium  
 hexafluorophosphate 24991-55-7, Polyethylene glycol dimethyl ether  
 25322-68-3D, Peo, lithium complex 29935-35-1, Lithium  
 hexafluoroarsenate 33454-82-9, Lithium triflate 39398-44-2  
 53805-01-9 55326-82-4, Lithium titanium sulfide litis2  
 61030-02-2 73235-25-3 90076-65-6 101994-65-4, Copper,  
 nickel, tin, zinc 129209-06-9, Lithium vanadium oxide li3v2o5  
 264266-20-8  
 RL: DEV (Device component use); USES (Uses)  
 (process for prepn. of nanostructure alloy **anodes** for  
 lithium **batteries**)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L41 ANSWER 57 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2000:278210 HCAPLUS  
DOCUMENT NUMBER: 132:281689  
TITLE: Secondary nonaqueous electrolyte batteries  
INVENTOR(S): Bito, Yasuhiko; Sato, Toshitada; Matsuda,  
Hiromu; Toyoguchi, Yoshinori; Nakagiri, Yasushi;  
Takezawa, Hideharu  
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
SOURCE: PCT Int. Appl., 36 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000024070	A1	20000427	WO 1999-JP5805	199910 20
<--				
W: US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 2000133260	A2	20000512	JP 1998-300547	199810 22
<--				
JP 2000133261	A2	20000512	JP 1998-302466	199810 23
<--				
JP 2001068112	A2	20010316	JP 1999-244061	199908 30
<--				
JP 2001076719	A2	20010323	JP 1999-246273	199908 31
<--				
JP 2001093524	A2	20010406	JP 1999-270703	199909 24
<--				
EP 1043789	A1	20001011	EP 1999-949336	199910 20
<--				
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
US 6265111	B1	20010724	US 2000-598206	200006 21
<--				
PRIORITY APPLN. INFO.:			JP 1998-300547	A 199810 22
<--				
			JP 1998-302466	A 199810 23

<--  
 JP 1999-244061 A 199908  
 30  
 <--  
 JP 1999-246273 A 199908  
 31  
 <--  
 JP 1999-270703 A 199909  
 24  
 <--  
 WO 1999-JP5805 W 199910  
 20

AB The batteries use anodes contg. LixMaM' (M = Ti, Zr, V, Sr, Ba, Y, La, Cr, Mo, W, Mn, Co, Ir, Ni, Cu and/or Fe; M' = Mg, Ca, Al, In, Si, Sn, Pb, Sb, and/or Bi; M ≠ M';  $x \leq 10$ ;  $0.1 \leq a \leq 10$ ) alloy particles that contain  $\geq 2$  phases. The 2 phases are McM' with  $0.25 \leq c \leq 3$  and MdM' with  $1 \leq d \leq 10$  and  $c < d$ .

IT 12019-61-3 12019-69-1 12054-11-4  
 12297-65-3 12394-61-5 12629-48-0  
 39445-33-5

RL: DEV (Device component use); USES (Uses)  
 (comps. of multiphase lithium intercalating alloys for anodes in secondary lithium batteries)

RN 12019-61-3 HCAPLUS

CN Copper, compd. with tin (3:1) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	3	7440-50-8
Sn	1	7440-31-5

RN 12019-69-1 HCAPLUS

CN Copper, compd. with tin (6:5) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	6	7440-50-8
Sn	5	7440-31-5

RN 12054-11-4 HCAPLUS

CN Copper, compd. with tin (1:1) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	1	7440-50-8
Sn	1	7440-31-5

RN 12297-65-3 HCAPLUS

CN Cobalt, compd. with tin (1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	1	7440-31-5

RN 12394-61-5 HCAPLUS

CN Cobalt, compd. with tin (1:2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sn	2	7440-31-5

RN 12629-48-0 HCAPLUS

CN Copper, compd. with tin (3:2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	3	7440-50-8
Sn	2	7440-31-5

RN 39445-33-5 HCAPLUS

CN Copper, compd. with tin (4:1) (6CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	4	7440-50-8
Sn	1	7440-31-5

IC ICM H01M004-40

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1310-52-7 1313-08-2 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 7440-33-7, Tungsten, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-62-2, Vanadium, uses 11130-80-6 12003-14-4 12003-21-3 12003-42-8 12003-64-4 12003-70-2 12003-96-2 12004-15-8 12004-32-9 12004-58-9 12004-62-5 12004-78-3 12009-35-7, Barium silicide (BaSi) 12017-11-7, Cobalt silicide (CoSi) 12017-12-8, Cobalt silicide (CoSi2) 12019-61-3 12019-69-1 12022-95-6, Iron silicide (FeSi) 12022-99-0, Iron silicide (FeSi2) 12023-00-6 12023-54-0, Iron silicide (Fe3Si) 12023-56-2 12023-77-7, Iron silicide (Fe5Si3) 12032-85-8, Manganese silicide (MnSi) 12032-86-9, Manganese silicide (MnSi2) 12032-87-0 12033-06-6 12033-10-2, Manganese silicide (Mn5Si3) 12033-37-3, Molybdenum silicide (Mo3Si) 12035-57-3, Nickel silicide (NiSi) 12039-70-2, Titanium silicide (TiSi) 12039-75-7, Vanadium silicide (VSi) 12039-76-8, Vanadium silicide (V3Si) 12039-83-7, Titanium silicide (TiSi2) 12039-87-1, Vanadium silicide (VSi2) 12039-90-6, Zirconium silicide (ZrSi2) 12042-17-0 12054-11-4 12059-11-9 12059-14-2, Nickel silicide (Ni2Si) 12059-23-3 12059-24-4 12067-57-1, Titanium silicide (Ti5Si3) 12136-73-1, Manganese silicide (Mn2Si) 12138-25-9, Vanadium silicide (V2Si) 12138-26-0, Zirconium silicide (ZrSi) 12138-32-8 12163-59-6, Manganese silicide (Mn3Si) 12166-59-5 12166-60-8 12166-63-1 12201-89-7, Nickel silicide (NiSi2) 12202-01-6 12252-30-1 12253-13-3 12253-45-1 12297-65-3 12339-84-3 12343-95-2, Iron silicide (Fe2Si) 12394-61-5 12396-85-9, Nickel silicide (Ni3Si2) 12410-47-8, Cobalt silicide (Co3Si) 12413-12-6 12510-35-9 12629-48-0 12725-82-5 12763-92-7 39438-57-8, Iron silicide (Fe3Si2) 39445-33-5 54065-12-2 60874-28-4, Iron molybdenum silicide (FeMoSi) 77137-25-8, Titanium silicide (Ti2Si) 78983-55-8 86116-27-0 91607-16-8 93508-85-1 141616-89-9 210885-32-8 264124-69-8 264124-70-1 264124-71-2 264124-72-3 264124-74-5 264124-75-6 264124-76-7 264124-77-8 264124-79-0 264124-80-3 264124-81-4

264124-82-5 264124-90-5, Zirconium silicide (Zr<sub>0.8</sub>Si)  
 264124-96-1, Vanadium silicide (V<sub>3</sub>Si<sub>2</sub>) 264125-08-8, Cobalt  
 silicide (Co<sub>3</sub>Si<sub>2</sub>) 264125-13-5, Barium titanium silicide (BaTi<sub>2</sub>Si<sub>2</sub>)  
 264125-17-9 264125-18-0

RL: DEV (Device component use); USES (Uses)  
 (comps. of multiphase lithium intercalating alloys for  
 anodes in secondary lithium batteries)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L41 ANSWER 58 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:254760 HCAPLUS

DOCUMENT NUMBER: 132:267596

TITLE: Secondary lithium batteries with improved anodes  
 using carbon-graphite mixture

INVENTOR(S): Takeuchi, Seiji; Honbo, Hidetoshi; Kaneda,  
 Junya; Muranaka, Kiyoshi

PATENT ASSIGNEE(S): Hitachi, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000113877	A2	20000421	JP 1998-285449	199810 07
JP 3055892	B2	20000626	JP 1998-285449	199810 07

AB The batteries use anodes contg. (1) conductor aids of C particles  
 supporting metals which form alloys with Li and (2) intercalatable  
 graphite, and the size of the C particle is smaller than that of the  
 graphite. The batteries have improved electrocond. for  
 charge-discharge reaction rate, discharge capacity for output d.,  
 cycle performance, and heat emission and use decreased amt. of  
 high-cost metals for supporting.

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)  
 (Li battery anodes using metal-supporting  
 carbon particle-intercalatable graphite mixt. for  
 discharge capacity and cycle performance)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-02

ICS H01M004-58; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)

IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-92-1,  
 Lead, uses 7439-97-6, Mercury, uses 7440-05-3, Palladium, uses  
 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-24-6,  
 Strontium, uses 7440-28-0, Thallium, uses 7440-31-5,  
 Tin, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses

7440-42-8, Boron, uses 7440-43-9, Cadmium, uses 7440-44-0,  
Carbon, uses 7440-55-3, Gallium, uses 7440-69-9, Bismuth, uses  
7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7782-42-5,  
Graphite, uses 13494-80-9, Tellurium, uses

RL: DEV (Device component use); USES (Uses)

(Li battery anodes using metal-supporting  
carbon particle-intercalatable graphite mixt. for  
discharge capacity and cycle performance)

L41 ANSWER 59 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:205858 HCAPLUS

DOCUMENT NUMBER: 132:224827

TITLE: Carbonaceous material coated anode materials for  
secondary lithium batteries

INVENTOR(S): Sato, Shuji; Fuse, Akira; Ishihara, Masashi

PATENT ASSIGNEE(S): Mitsubishi Chemical Industries Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2000090916	A2	20000331	JP 1998-256562	199809 10

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PRIORITY APPLN. INFO.: JP 1998-256562

199809  
10

<--

AB The anode materials are carbonaceous material coated Li  
intercalating metal particles, obtained by heat treating a mixt. of  
precursors of the metal and the carbonaceous material, and contain  
5-85% of the metal. The metal precursor is selected from oxides,  
sulfides, nitrides, selenides, tellurides, nitrates, sulfates,  
compds. of Group IA elements, IIA elements, Ti, V, Ta, Group VIA  
elements, Mn, Group VIII elements, Group IB elements, Group IIB  
elements, Group IIIB elements, Group IVB elements, As, Sb, and Bi  
and their mixts. and is agglomerated secondary particles having av.  
diam.  $\leq 10 \mu\text{m}$  of primary particles having av. diam.  
 $\leq 500 \text{ nm}$ . The carbonaceous material formed from the heat  
treatment has interplanar spacing  $d_{002} \geq 3.38 \text{ \AA}$  and  $L_c$   
 $\leq 100 \text{ \AA}$ .

IT 7440-31-5, Tin, uses

RL: DEV (Device component use); USES (Uses)

(carbonaceous material coated metal particles for  
anodes in secondary lithium batteries)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-02

ICS H01M004-04; H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 7440-31-5, Tin, uses 71513-06-9 211364-72-6

RL: DEV (Device component use); USES (Uses)

(carbonaceous material coated metal particles for  
anodes in secondary lithium batteries)



L41 ANSWER 60 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:572133 HCAPLUS

DOCUMENT NUMBER: 131:172716

TITLE: Electrodes, secondary batteries, and their manufacture

INVENTOR(S): Kawakami, Soichiro; Asao, Masaya; Kobayashi, Naoya; Kosuzu, Takeshi; Kimura, Hironao

PATENT ASSIGNEE(S): Canon K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 50 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11242954	A2	19990907	JP 1998-30642	19980128
JP 3619000	B2	20050209	<--	
CA 2228095	AA	19980728	CA 1998-2228095	19980128
CA 2228095	C	20020108	<--	
US 6432585	B1	20020813	US 1998-14408	19980128
JP 2005044814	A2	20050217	JP 2004-290296	20041001
PRIORITY APPLN. INFO.:			JP 1997-13942	A 19970128
			JP 1997-369371	A 19971227
			JP 1998-30642	A3 19980128
AB	The electrodes have a collector plate and active mass layers, contg. $\geq 35\%$ main component having av. particle diam. 0.5-60 $\mu\text{m}$ , covering both sides of the collector. The active mass layer may have 10-86% porosity, the collector may have protrusions on their surface, and the main component contains Si, Ge, Sn, Pb, In, Mg, and/or Zn. The batteries are secondary batteries using the above electrodes as anodes. The electrodes and the secondary batteries using the anodes are prepd. by forming the active mass layer on the collector, e.g., by painting or plating.			
IT	7440-31-5, Tin, uses RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (compsn. and structure and manuf. of anodes with controlled active mass particle diams. for batteries)			
RN	7440-31-5 HCAPLUS			
CN	Tin (8CI, 9CI) (CA INDEX NAME)			

Sn

IC ICM H01M004-02  
 ICS H01M004-02; H01M004-04; H01M004-38; H01M004-58; H01M004-62;  
 H01M004-66; H01M004-70; H01M010-24; H01M010-40; H01M012-08  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)  
 IT 1313-99-1, Nickel oxide (NiO), uses 1314-13-2, Zinc oxide, uses  
 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-21-3,  
 Silicon, uses 7440-31-5, Tin, uses 7440-44-0, Carbon,  
 uses 7440-50-8, Copper, uses 7440-69-9, Bismuth, uses  
 7440-74-6, Indium, uses 7782-42-5, Graphite, uses 9002-84-0  
 24937-79-9 25232-41-1, Poly(4-vinylpyridine) 37233-35-5  
 50926-11-9, Ito 145225-67-8 187674-56-2  
 RL: DEV (Device component use); PEP (Physical, engineering or  
 chemical process); PROC (Process); USES (Uses)  
 (compns. and structure and manuf. of anodes with  
 controlled active mass particle diams. for  
 batteries)

L41 ANSWER 61 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:451119 HCAPLUS

DOCUMENT NUMBER: 131:90247

TITLE: battery electrodes having carbon  
 particles containing mixed nano-size  
 additives, the batteries, their manufacture, and  
 electrolysis method for the manufacture  
 INVENTOR(S): Foto, Dennis G.; Ci, G.; Krawiec, Urodec  
 PATENT ASSIGNEE(S): Mitsubishi Chemical Industries Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 11195413	A2	19990721	JP 1998-298303	199810 20
			<--	
US 5965297	A	19991012	US 1997-954144	199710 20
			<--	
PRIORITY APPLN. INFO.:			US 1997-954144	A 199710 20

AB The electrodes have a collector, an active mass contg.  $\leq 1$   
 $\mu\text{m}$  additive particles mixed with C particles,  
 and a means preventing losing of elec. contact of the additive  
 particles caused by their mech. deformation. The additive  
 is selected from Sn, Cu, Sb, Zn, Ag, Au, their mixts., and their  
 alloys; and the additive particles have diam. 1 nm to 1  
 $\mu\text{m}$ . The batteries have cathodes and/or anode having the above  
 structure and are prepd. by applying the active mass on electrode  
 substrates to form an electrode, attaching an electrolyte to the  
 electrode, and connecting the other electrode to the electrolyte.  
 Batteries using anode having the above structure are electrolyzed by  
 charging the batteries to add metal ions to the additive in the C

particles, while retaining the continuity of the C particles during and after the addn. of the metal ions, to contact the additives with the C particles, and to elec. join the C particles.

IT 7440-31-5, Tin, uses 229640-65-7  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (structure and manuf. of anodes from carbon particles contg. mixed nano metal particles for batteries)  
 RN 7440-31-5 HCAPLUS  
 CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

RN 229640-65-7 HCAPLUS  
 CN Tin alloy, base, Sn 91,Cu 9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Sn	91	7440-31-5
Cu	9	7440-50-8

IC ICM H01M004-02  
 ICS H01M004-04; H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST battery electrode carbon nano metal particle manuf; carbon battery anode nano metal particle  
 IT Phenolic resins, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (in manuf. of anodes from carbon particles contg. mixed nano metal particles for batteries)  
 IT Battery anodes  
 (structure and manuf. of anodes from carbon particles contg. mixed nano metal particles for batteries)  
 IT Carbonaceous materials (technological products)  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (structure and manuf. of anodes from carbon particles contg. mixed nano metal particles for batteries)  
 IT 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses 11107-72-5 206443-56-3 229640-65-7  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (structure and manuf. of anodes from carbon particles contg. mixed nano metal particles for batteries)  
 IT 7782-42-5, Graphite, processes  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (structure and manuf. of anodes from carbon particles contg. mixed nano metal particles for batteries)

L41 ANSWER 62 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1999:322621 HCAPLUS  
 DOCUMENT NUMBER: 130:340688  
 TITLE: Anode materials for nonaqueous secondary batteries, their manufacture, and nonaqueous secondary batteries  
 INVENTOR(S): Akagi, Ryuichi; Suzuki, Atsushi; Kajiura, Yoshio  
 PATENT ASSIGNEE(S): Kao Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11135120	A2	19990521	JP 1997-293896	199710 27

PRIORITY APPLN. INFO.: JP 1997-293896  
199710  
27

AB The anode materials comprise composite particles of carbonaceous materials and Li-intercalating elements or compds. of  $\geq 1$  of Group IIIA elements, Group IVA elements excluding Si, and Group VA elements. Powders of Li-intercalating elements or compds. are mixed with resins that are carbonizable by heating, heated at 400-1200° under nonoxidizing atm., and mech. crushed to give composite particles for anode materials. Secondary batteries comprising the anodes, transition metal oxide cathodes, and Li ion-conducting nonaq. electrolytes comprising org. solvents contg. Li compds., polymers contg Li compds., or polymers carrying org. solns. of Li compds. are also claimed. Batteries having excellent charge-discharge cycles, high voltage, and high capacity are obtained.

IT 7440-31-5, Tin, uses  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(carbon-metal composite particles as anodes  
for nonaq. secondary batteries)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-58

ICS H01M004-02; H01M004-04; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7429-90-5, Aluminum, uses 7440-31-5, Tin, uses  
7440-69-9, Bismuth, uses 9016-83-5, Cresol-formaldehyde copolymer  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(carbon-metal composite particles as anodes  
for nonaq. secondary batteries)

L41 ANSWER 63 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:811831 HCAPLUS

DOCUMENT NUMBER: 130:69101

TITLE: Anodes containing metal particles for secondary lithium ion batteries

INVENTOR(S): Takagi, Yoshinori; Hatano, Hitomi; Sato, Nobuyuki

PATENT ASSIGNEE(S): Kawasaki Steel Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 10334887                      A2            19981218            JP 1997-146504  
199706  
04

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PRIORITY APPLN. INFO.:                      JP 1997-146504  
199706  
04

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AB    The title anodes contain carbon materials or org. materials, and  
metal particles which have ionization equil. potential >-0.3 V. The  
anodes may contain 0.1-20 parts 0.05-5 µm-diam. particles of Ni,  
Co, Sn, and/or Pb. The carbon materials may be mesophase carbon  
beads. Resulting batteries have high charging-discharging capacity.  
IT    7440-31-5, Tin, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); PRP  
(Properties); USES (Uses)  
      (metal **particle**-contg. **anodes** from mesophase  
      C for secondary Li ion **battery**)  
RN    7440-31-5 HCAPLUS  
CN    Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC    ICM H01M004-02  
ICS H01M004-58; H01M004-62  
CC    52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)  
IT    7439-92-1, Lead, uses 7440-02-0, Nickel, uses 7440-31-5,  
Tin, uses 7440-48-4, Cobalt, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); PRP  
(Properties); USES (Uses)  
      (metal **particle**-contg. **anodes** from mesophase  
      C for secondary Li ion **battery**)

L41 ANSWER 64 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:804120 HCAPLUS

DOCUMENT NUMBER: 130:54847

TITLE: Anode materials for secondary  
nonaqueous-electrolyte batteries and batteries  
using these materialsINVENTOR(S): Shimamura, Harunari; Okamura, Kazuhiro; Nitta,  
Yoshiaki

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 25 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 7

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 883199	A1	19981209	EP 1998-110110	199806 03

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EP 883199                      B1            20030507  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO  
JP 2000030703                      A2            20000128            JP 1998-150966  
199806

HK 1015550

A1

20030905

HK 1999-100282

01

199901  
21

PRIORITY APPLN. INFO.:

JP 1997-144873

A

199706  
03

JP 1998-123199

A

199805  
06

AB The composite title materials comprise a core formed by a solid phase A, and a solid phase Q partly or entirely wrapping the core. The amt. of Li intercalation and deintercalation by the phase A resulting from the charge and discharge is higher than that by the phase Q, however, the discharge capacity decrease of the phase Q resulting from battery cycling is low. The solid phase A comprises 1 of the materials selected from Li,  $\geq 1$  of the elements which is able to alloy with Li, solid soln. including  $\geq 1$  of the above elements being able to alloy with Li, or an intermetallic compd. including  $\geq 1$  of the above elements being able to alloy with Li. The solid phase Q has a different compn., but comprises the same kind of materials except Li by itself as those of the solid phase A. It is essential that the solid phase Q is a mixed conductor having electronic as well as Li ionic cond. When these materials are used in the anode, a secondary nonaq.-electrolyte battery can be realized featuring high reliability, high cycle characteristic, a high capacity, and excellent high-rate charge and discharge characteristics.

IT 67828-86-8 78966-19-5

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(in composite anodes for secondary nonaq.-electrolyte  
batteries)

RN 67828-86-8 HCAPLUS

CN Tin alloy, base, Sn 80,Co 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	80	7440-31-5
Co	20	7440-48-4

RN 78966-19-5 HCAPLUS

CN Tin alloy, base, Sn 67,Co 33 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	67	7440-31-5
Co	33	7440-48-4

IC ICM H01M004-40

ICS H01M004-36; H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 7439-98-7, Molybdenum, uses 7440-21-3, Silicon, uses 12057-22-6,  
LiZn 12338-02-2 12359-06-7 12372-42-8, InLi 12588-27-1  
12606-83-6 12625-55-7 12635-26-6 12719-97-0 12779-78-1  
37201-99-3 37254-87-8 37345-56-5 39328-55-7 42616-53-5  
52359-88-3 53550-31-5 53680-56-1 54739-65-0 54966-99-3  
55823-21-7 56095-13-7 57896-14-7 57952-74-6 58817-42-8  
58817-44-0 60224-91-1 65467-06-3, Barium alloy, Ba 56,Al 44  
66758-27-8 67661-05-6 67828-86-8 68714-90-9

72048-17-0	73730-53-7	73990-63-3	74662-93-4	77325-33-8
78966-19-5	79818-26-1	80507-64-8	81754-08-7	
81876-77-9	81876-81-5	82906-17-0	85746-90-3	87646-31-9
90738-65-1	96958-82-6	100502-97-4	101406-54-6	110109-09-6
110414-25-0	110633-84-6	112787-78-7	113470-14-7	114016-83-0
117816-43-0	118035-89-5	119281-87-7	119469-25-9	122381-65-1
126034-61-5	127706-34-7	128491-68-9	128491-69-0	131082-81-0
137747-27-4	140154-87-6	142536-01-4	145604-95-1	147856-99-3
148844-98-8	155759-82-3	158140-18-2	172919-16-3	173790-72-2
198958-08-6	204000-16-8	217074-33-4	217074-37-8	217074-44-7
217074-48-1	217074-51-6	217074-53-8	217074-57-2	217074-65-2
217074-68-5	217074-71-0	217074-75-4	217075-09-7	217075-12-2
217075-19-9	217075-21-3	217075-23-5	217075-26-8	217075-28-0
217075-30-4	217075-34-8	217075-38-2	217075-39-3	217075-40-6
217075-41-7	217075-42-8	217075-43-9	217075-44-0	217075-45-1
217075-46-2	217075-47-3	217075-48-4	217075-49-5	217075-50-8
217075-51-9	217075-52-0	217075-53-1	217075-54-2	217075-55-3
217075-56-4	217075-57-5	217075-58-6	217075-59-7	217075-61-1
217075-62-2	217075-63-3	217075-64-4	217075-65-5	

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (in composite **anodes** for secondary nonaq.-electrolyte  
**batteries**)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

L41 ANSWER 65 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:25656 HCAPLUS

DOCUMENT NUMBER: 128:77627

TITLE: Lithium secondary batteries having high capacity  
 and capable of rapid charging and discharging  
 INVENTOR(S): Takeuchi, Seiji; Honbo, Hidetoshi; Muranaka,  
 Kiyoshi

PATENT ASSIGNEE(S): Hitachi, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 10003907	A2	19980106	JP 1996-155115	199606 17
			<--	
JP 3188395	B2	20010716		
JP 10321225	A2	19981204	JP 1997-129486	199705 20
			<--	
US 6030726	A	20000229	US 1997-866250	199706 05
			<--	
CN 1170243	A	19980114	CN 1997-112800	199706 16
			<--	
CN 1086515	B	20020619		
PRIORITY APPLN. INFO.:			JP 1997-129486	A 199705 20
			<--	

JP 1996-155115

A

199606

17

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AB Anodes in the title Li batteries contain C particles carrying metals (A) capable of alloying with Li and C particles carrying metals (B) which unable to alloy with Li. Alternatively, anodes in the batteries contain C particles carrying A-B alloys. Electromobiles and elec. motorcycles using motors contg. the claimed batteries are claimed. The batteries show long cycling life.

IT 7440-31-5P, Tin, uses 12668-36-9P  
 RL: DEV (Device component use); PNU (Preparation, unclassified);  
 PREP (Preparation); USES (Uses)  
 (loaded on carbon; Li secondary batteries using  
 anodes contg. C particles carrying metals)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

RN 12668-36-9 HCAPLUS

CN Copper alloy, nonbase, Cu, Sn (9CI) (CA INDEX NAME)

Component Component  
 Registry Number

=====+=====

Cu	7440-50-8
Sn	7440-31-5

IC ICM H01M004-40  
 ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery anodes  
 (Li secondary batteries using anodes contg. C particles carrying metals)

IT Electric vehicles  
 (Li secondary batteries using anodes contg. C particles carrying metals suitable for)

IT Motorcycles  
 (elec.; Li secondary batteries using anodes contg. C particles carrying metals suitable for)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses  
 RL: DEV (Device component use); USES (Uses)  
 (carrying metals; Li secondary batteries using anodes contg. C particles carrying metals)

IT 7440-02-0P, Nickel, uses 7440-22-4P, Silver, uses  
 7440-31-5P, Tin, uses 7440-50-8P, Copper, uses  
 12668-36-9P  
 RL: DEV (Device component use); PNU (Preparation, unclassified);  
 PREP (Preparation); USES (Uses)  
 (loaded on carbon; Li secondary batteries using  
 anodes contg. C particles carrying metals)

L41 ANSWER 66 OF 71 HCAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1997:184167 HCAPLUS

DOCUMENT NUMBER: 126:174297

TITLE: Nickel/hydride batteries with improved anodes and their manufacture

INVENTOR(S): Tanaka, Toshiki; Nakagawa, Hiroe; Oonishi, Masuhiro; Bogauchi, Takehito; Furukawa, Kengo; Matsumura, Juichi; Oshitani, Masahiko

PATENT ASSIGNEE(S): Yuasa Battery Co., Ltd., Japan; Yuasa Corp.



SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09007585	A2	19970110	JP 1995-159244	19950626
JP 3528333	B2	20040517	JP 1995-159244	19950626

AB The batteries use anodes contg. powd. H absorbing transition metal alloy, having higher transition metal concn. on the particle surface than in the bulk, and Group IIB, IVB, VB, VIB, VIII, IIA elements, In, Sn, and/or Sb or their compds. The batteries are manufd. by removing oxide films from the alloy particle surface while eluting rare earth elements from the surface and prepg. the anodes from the treated particles and the above mentioned elements and/or compds.. The batteries have long cycle life.

IT 7440-31-5, Tin, uses  
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (additives in anodes contg. hydrogen absorbing alloy particles with transition metal enriched surface layers for nickel batteries)

RN 7440-31-5 HCAPLUS  
 CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-24  
 ICS H01M004-38; H01M010-30  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT 1305-62-0, Calcium hydroxide, uses 1307-96-6, Cobalt oxide (CoO), uses 1308-38-9, Chromium oxide (Cr2O3), uses 1309-42-8, Magnesium hydroxide 1314-13-2, Zinc oxide, uses 1314-61-0, Tantalum oxide (Ta2O5) 7440-31-5, Tin, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-74-6, Indium, uses 13463-67-7, Titania, uses  
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (additives in anodes contg. hydrogen absorbing alloy particles with transition metal enriched surface layers for nickel batteries)

L41 ANSWER 67 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:700953 HCAPLUS  
 DOCUMENT NUMBER: 126:34284  
 TITLE: Small particle size multiphase Li-alloy anodes for lithium-ion-batteries  
 AUTHOR(S): Yang, J.; Winter, M.; Besenhard, J. O.  
 CORPORATE SOURCE: Institute for Chemical Technology of Inorganic Materials, Technical University of Graz,

SOURCE: Stremayrgasse 16/III, A-8010, Graz, Austria  
Solid State Ionics (1996), 90(1-4),  
281-287  
CODEN: SSIOD3; ISSN: 0167-2738  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB An impressive improvement of the cycling performance of Li-alloy anodes in rechargeable org. electrolyte lithium batteries can be achieved by replacing compact or large particle size metallic host matrixes M (e.g. Sn or Sb) with small particle size (micro- or nano-scale) multiphase metallic host materials like Sn/SnSbn or Sn/SnAgn. Electrochem. alloy deposition is a convenient way to prep. sub-micrometer particles of Sn and SnSbn or Sn and SnAgn. During the first lithium insertion these small particle size multiphase matrix materials are expanded to a porous material without formation of major cracks. This seems not only to be related with the small abs. changes in the size of the individual particles, but also with the fact that the more reactive particles are allowed to expand in a soft and ductile surrounding of still unreacted material.

IT 7440-31-5, Tin, uses  
RL: DEV (Device component use); USES (Uses)  
(small particle size multiphase Li-alloy anodes  
for lithium-ion-batteries)  
RN 7440-31-5 HCAPLUS  
CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 56  
IT 7440-31-5, Tin, uses 54611-89-1 116911-10-5  
RL: DEV (Device component use); USES (Uses)  
(small particle size multiphase Li-alloy anodes  
for lithium-ion-batteries)

L41 ANSWER 68 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:599032 HCAPLUS  
DOCUMENT NUMBER: 125:226556  
TITLE: Secondary lithium battery-using system and material for anode of secondary battery  
INVENTOR(S): Takeuchi, Seiji; Honbo, Hidetoshi; Yamagata, Takeo; Horiba, Tatsuo; Muranaka, Yasushi  
PATENT ASSIGNEE(S): Hitachi, Ltd., Japan  
SOURCE: Eur. Pat. Appl., 10 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 729194	A2	19960828	EP 1996-101409	19960201
EP 729194	A3	19960918		
EP 729194	B1	19990602		
R: DE, FR, GB				
JP 08273702	A2	19961018	JP 1996-17220	

199602  
02

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JP 3165953 B2 20010514  
US 6083645 A 20000704 US 1998-156387

199809  
18

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PRIORITY APPLN. INFO.: JP 1995-15676 A

199502  
02

&lt;--

US 1996-595246 B1

199602  
01

&lt;--

AB A secondary Li battery for use as a power source for systems such as an elec. automobile, motor bicycle or portable equipment includes an anode composed of a C material including C particles carrying fine particles of a metal which forms an alloy with Li. The C particles have the spacing of (002) planes 3.354-3.369 Å and the crystallite size in the c-axis direction >300 Å. The particle size of the metal forming an alloy with Li is ≤1000 Å. By using the charge/discharge capacity of the alloy, a value exceeding the theor. capacity 372 mA-h/g graphite can be obtained. The battery is capable of discharge with an output energy d. ≥350 W/kg.

IT 7440-31-5, Tin, uses  
RL: DEV (Device component use); USES (Uses)  
(battery anodes from carbon particles  
contg. metal which forms alloys with lithium)  
RN 7440-31-5 HCAPLUS  
CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-58  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
IT 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-44-0, Carbon, uses 7440-69-9, Bismuth, uses  
RL: DEV (Device component use); USES (Uses)  
(battery anodes from carbon particles  
contg. metal which forms alloys with lithium)

L41 ANSWER 69 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1995:795675 HCAPLUS  
DOCUMENT NUMBER: 123:175032  
TITLE: Mercury free alkaline zinc batteries with improved anodes  
INVENTOR(S): Tsutsui, Kyohide; Izumi, Akihideo; Nishio, Masatake; Nishida, Kunyoshi  
PATENT ASSIGNEE(S): Fuji Electrochemical Co Ltd, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07169463	A2	19950704	JP 1993-313309	

199312  
14

PRIORITY APPLN. INFO.:

<--  
JP 1993-313309199312  
14

AB The batteries use anodes composed of powd. Hg free microalloyed Zn  
contg. Pb, In, Al, Ga, Sn, Ca, Mg, Bi, Li, and/or Na, having  
particle size 75-450  $\mu$ m, contg.  $\geq 90\%$   $\leq 300\text{-}\mu$ m  
particles. The batteries show large capacity at low temp. and high  
load discharging.

IT 7440-31-5, Tin, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(microalloying element; controlled particle size of  
mercury free microalloyed zinc for battery  
anodes)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-42

ICS H01M010-24

CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
Technology)

IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-93-2,  
Lithium, uses 7439-95-4, Magnesium, uses 7440-23-5, Sodium, uses  
7440-31-5, Tin, uses 7440-55-3, Gallium, uses 7440-69-9,  
Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(microalloying element; controlled particle size of  
mercury free microalloyed zinc for battery  
anodes)

L41 ANSWER 70 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:155496 HCAPLUS

DOCUMENT NUMBER: 116:155496

TITLE: Secondary alkaline zinc batteries

INVENTOR(S): Fujiwara, Yoshiki; Ishikura, Yoshikazu

PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03272563	A2	19911204	JP 1990-71661	199003 20

JP 2854082 B2 19990203  
PRIORITY APPLN. INFO.: JP 1990-71661

199003  
20

AB The active material of the batteries contain Zn particles of  
 $\leq 10\text{ }\mu$ m with ZnO-based surface layer. Preferably, ZnO  
particles of  $\leq 1\text{ }\mu$ m size are added to the anodes, and In,  
Tl, Ga, Sn, Bi, and/or Pb are present in the surface layers as

additives, and in the particle core as alloying components. The active material particles are resistant to swelling, elution (to the electrolytes), and dendrite generation, and the batteries have excellent cycling characteristics.

IT 7440-31-5, Tin, uses  
 RL: USES (Uses)  
 (anodes from zinc particles coated with zinc  
 oxide and, for alk. secondary batteries)  
 RN 7440-31-5 HCAPLUS  
 CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM H01M004-42  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy  
 Technology)  
 IT 7439-92-1, Lead, uses 7440-28-0, Thallium, uses 7440-31-5  
 , Tin, uses 7440-55-3, Gallium, uses 7440-69-9, Bismuth, uses  
 7440-74-6, Indium, uses 20661-21-6, Indium hydroxide  
 RL: USES (Uses)  
 (anodes from zinc particles coated with zinc  
 oxide and, for alk. secondary batteries)

L41 ANSWER 71 OF 71 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1988:196324 HCAPLUS  
 DOCUMENT NUMBER: 108:196324  
 TITLE: Method for making irregular shaped  
 single-crystal metal particles for use in anodes  
 for electrochemical cells  
 INVENTOR(S): Pa, David; Putt, Ronald A.; Black, Douglas  
 PATENT ASSIGNEE(S): Duracell, Inc., USA  
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 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 4722763	A	19880202	US 1986-945596	198612 23
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GB 2198964	A1	19880629	GB 1987-19502	198708 18
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JP 63166786	A2	19880709	JP 1987-221187	

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JP 05066911  
PRIORITY APPLN. INFO.:

B4 19930922

US 1986-945596

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198612  
23

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AB The method comprises: (1) forming thin individual coatings on each of the particles, such as metal oxides on metal particles; (2) adding a combustible material to the coated particles and burning it; (3) melting the particle material within the coatings, which function as individual particle crucibles; (4) cooling the melted particles within the coatings to form individual single crystals, each within its own coating; and (5) removing the coating, such as by solvation, with a solvent or by chem. reaction. The single-crystal particles conform to the original shape of the particles, which may be irregular. Such irregularly shaped single crystals, such as of Zn, when used in electrochem. cell anodes, enable the utilization of reduced amts. of Hg for their amalgamation without significant increase in cell gassing.

IT 7440-31-5, Tin, properties

RL: PRP (Properties)

(crystal growth of irregularly shaped particles of, for  
battery anodes)

RN 7440-31-5 HCAPLUS

CN Tin (8CI, 9CI) (CA INDEX NAME)

Sn

IC ICM C30B029-60

INCL 156616100

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 52, 72

IT 7429-90-5, Aluminum, properties 7439-92-1, Lead, properties

7439-93-2, Lithium, properties 7439-95-4, Magnesium, properties

7440-09-7, Potassium, properties 7440-17-7, Rubidium, properties

7440-23-5, Sodium, properties 7440-31-5, Tin, properties

7440-43-9, Cadmium, properties 7440-66-6, Zinc, properties

RL: PRP (Properties)

(crystal growth of irregularly shaped particles of, for  
battery anodes)

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